







Н. № 194. С.

Oct. 1882.

Oeconomia. S. agriculturæ singul. region.
170.

Oct. agr. N. 49.

R

T R A C T S
ON
PRACTICAL AGRICULTURE
AND
GARDENING.

Particularly addressed to the
GENTLEMEN-FARMERS
IN GREAT-BRITAIN.

With several useful Improvements
IN STOVES AND GREEN-HOUSES.

To which is added,
A CHRONOLOGICAL CATALOGUE
OF ENGLISH AUTHORS
ON AGRICULTURE, BOTANY, GARDENING, &c.

BY R. WESTON, Esq.
AUTHOR OF THE UNIVERSAL BOTANIST.

THE SECOND EDITION, GREATLY IMPROVED.

L O N D O N:
Printed for S. HOOPER, No. 25, LUDGATE-HILL.
MDCCLXXIII.

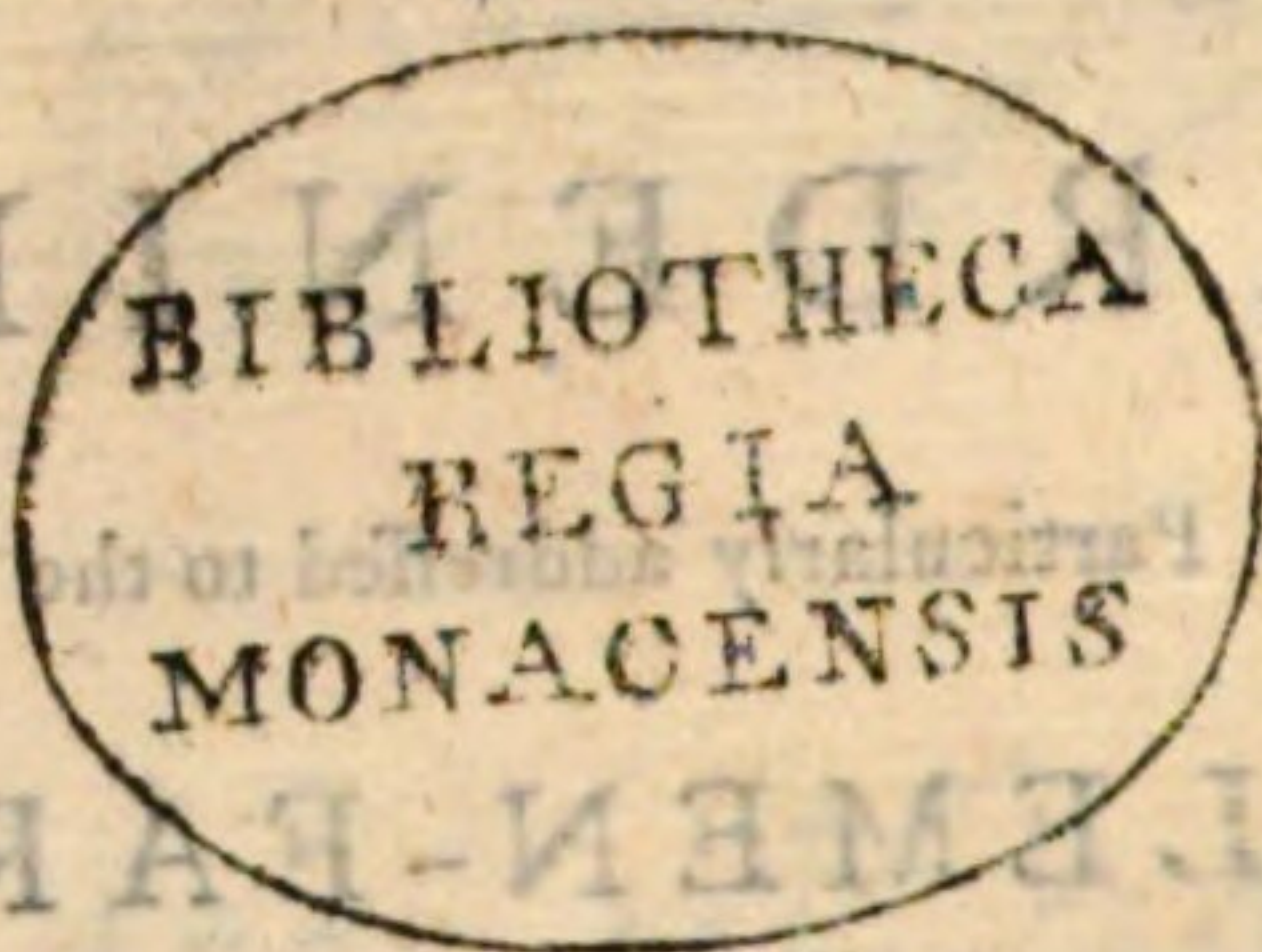
T R A C T S

ON

PRACTICAL AGRICULTURE

AND

GARDENING.



GENTLEMAN-FARMERS

IN GREAT-BRITAIN.

With several useful Improvements

IN STOVES AND GREEN-HOUSES.

To which is added,

A CHRONOLOGICAL CATALOGUE

OF ENGLISH AUTHORS

ON AGRICULTURE, BOTANY, GARDENING, &c.

BY R. WESTON, Esq.
Author of the Universal Botanist.

THE SECOND EDITION, GREATLY IMPROVED.

L O N D O N :
Printed for J. Bland, No. 22, Ludgate-Hill.
MDCCLXXIII.

DEDICATION
iv
TO THE
RIGHT HONOURABLE LIEUTENANT-GENERAL
HENRY SEYMOUR CONWAY,
COLONEL OF THE ROYAL REGIMENT OF
HORSE-GUARDS,
GOVERNOR OF THE ISLAND OF JERSEY,

AND
ONE OF HIS MAJESTY'S MOST HONOURABLE
PRIVY-COUNCIL.

S I R,

YOUR accurate knowledge of the subjects attempted to be discussed in this work, and that elegant taste, with which you have cultivated one of the most pleasing seats in the kingdom, are more than sufficient to vindicate the presumption which induces me to offer you the fruits of my leisure hours.

As they cannot furnish any matter, with which you were not perfectly acquainted before, they are, on that account, unworthy of your acceptance ; nor should I, if only this consideration had been attended to, have suffered them to be inscribed to you : but it is as much the duty of an individual, to pay a tribute of admiration, wheresoever it is due, as it is the peculiar property of a noble mind to be gratified by receiving it.

Whatever faults, therefore, I may have committed, as an author, I cannot have erred in assuming the place of one, who has the honour to subscribe himself,

With great respect,

S I R,

Your most obedient, and

most devoted humble Servant,

Kenfington-Gore,

April 15th. 1773.

RICHARD WESTON.

T H E

INTRODUCTION.

Recommends Societies in every County to encourage Agriculture, by introducing Mr. Tull's Methods of Husbandry; with a Plan for raising a Fund to support them.

SO many volumes on Husbandry and Gardening have already appeared, that it seems, in some measure, necessary for an author to give a reason for offering the public an additional treatise on those subjects; but they are so copious, so important, and open daily so many new and useful discoveries to
b those,

those, who amuse or employ themselves in such researches, that notwithstanding the many publications, there still remains ample field, for the observations and remarks of the curious and speculative.

Agriculture is very far from being arrived at an equal perfection, with many other arts and sciences, though it has been practised from the earliest period of time. This arises chiefly from its being confined to persons in a very low class of life, whose poverty and ignorance disable them from making proper experiments; whereas no one science has more occasion for the lights and assistance of philosophy; and till it be cherished and countenanced by men of opulence and learning, we cannot hope to see it advance towards perfection, with the same rapidity observable in other arts.

Agriculture and gardening having been my principal study and amusement for many years, I have attentively made remarks on every thing that related to those objects. In my first practical essays, I attempted to follow the common farmer in his usual way of raising
corn ;

corn; the general consequence was loss and disappointment, owing to the impossibility of a gentleman's attending to the minutiae, from which the principle profits of the farmer arise.

I then consulted and tried the methods practised by the most skilful nursery-men, and London kitchen-gardeners, and by observing the principles laid down by that great practical philosopher, Evelyn, and the rules of several of the modern practitioners of the new husbandry, as introduced by the ingenious Mr. Tull, I soon found, that if a gentleman hoped to reap any benefit from his labour, it must be by uniting the garden-culture with farming, and changing the common modes of cultivation, about which the Society for the Encouragement of Arts, &c. had very judiciously given hints and directions. This institution daily adds new life to agriculture, by the many noble premiums which it allots to the cultivators of several plants, grasses, &c.

This has already begun to stir up a spirit of emulation in this kingdom; but what would give the greatest spur to it, would be to establish county societies, as they are abroad, of

which some time ago, there were above thirty in France only,* several in Switzerland, others at Leipzig, Wirtemberg, Hanover,† Zurich, Heidelberg, Stockholm, &c. and in these kingdoms, I believe, none are yet established, if we except some in Breconshire and Yorkshire, now forming. I believe that one at Dublin, and ano-

* The following is the plan of a nursery established by the Society at Sens, in Burgundy; it is conducted by some of the Members of the Society of Agriculture, at Paris, is daily encreasing, and by its incredible success, gains the most distinguished reputation. The order which is maintained in its establishing, and the precautions that are used for packing and forwarding trees and cuttings, give to this nursery the preference over all others.

Exchanges are made of seeds and plants, in order to obtain varieties, and they have cultivated not only all sorts of timber and fruit-trees, but almost every curious tree and shrub, which are to be found in the English nurseries. What plants are sold, are at very reasonable rates; but they distribute gratis cuttings of the yellow fallow, and of all sorts of poplars and plane-trees; so that every gentleman of landed property, must be a planter, whether he will or no. What a noble institution for providing a future stock of timber!

† His late Majesty, George the second, founded this society, at the university of Gottingen, in 1751.

another at Scotland, dropped lately. Were a subscription raised for the support of them, with half the eagerness as for a horse-race, one might soon hope to see them put in execution; and as the breeding of horses is so much practised by this nation, societies for the improving of fodder for that noble animal, are equally necessary; it were hard if a country so long deservedly celebrated for its knowledge and industry in the culture of land, should ever cede these advantages to foreigners.

With regret I mention, that though Mr. Tull revived the invention of the drill-plough,* introduced it into practice in England, and favoured the public with an essay on the advantages of cultivating corn by it, in 1730, and in 1733, with a folio volume, yet he could not persuade his countrymen to

b 3

use

* It is very difficult to determine to what nation the credit of the drill-plough is due. In 1606, a quarto treatise, on setting corn in this manner, was published by one Maxey, or Massie; and Gabriel Plattes has given a description of such an instrument.

use it, nor did it gain much ground here, till after Mr. Du Hamel, an ingenious French gentle-

In 1631, Worlidge gave the print of an engine for sowing corn, grain, or pulse, &c. at any given distance and proportion; vide "System of Agriculture," fol. p. 17.

Hartlib, in his Legacy, in 1651, p. 10, mentions a drill-plough by name, nine years before the Spaniards boasted of their sembrador.

Blythe also was acquainted with it, and says, that it ploughed, sowed, and harrowed at one and the same time. Improver improved, 1653.

Soon after the restoration, an account was published by the Earl of Sandwich (Philosoph. Transact. No. 62) but he is certainly mistaken in saying, that Lucatello invented it, he only being the first Spaniard that learned to manage it, from an Austrian Engineer, about the year 1660; but how long the Austrians were in possession of the secret before they imparted it to the Spaniards, is a circumstance not easily to be ascertained.

A print of one invented by the Chinese, may be seen in the Culture des Terres, tom. 2. p. 190, the model of which was sent to the keeper of the seals in France, by Father d'Incarville, and the contrivance is by no means contemptible; but it is equally hard to ascertain, how long they had been in possession of a drill-plough, in all probability, for many ages. There is no nation where the cultivators of the earth receive more honour than in China,

What-

gentleman, and several of his friends, made experiments, which were published in about six volumes in 4to. then we were eager to adopt the plan, even with the trouble of attaining it by a foreign language, though deemed a visionary scheme when practised by the original introducer; however, it is now gaining ground, since that illustrious foreigner has shewed the great use of it, and since the encouragement given to it by the London Society.

Nothing can be so effectual for introducing new methods among the farmers, as premiums for the best crops of corn, and the largest vegetables produced for the feeding of cattle, as turneps, cabbages, &c. and though the plan of the society be very noble, yet it cannot be

b 4

supposed

Whatever nation was the first inventor of this useful instrument, the honour of introducing it here, is certainly due to Mr. Tull; the following lines appeared just after his death.

Quantula te jam terra tegit, quem millia late
Arva suum memorant enituisse decus!

Non opus est titulo, tua nam diffusa quotannis
Germinat Angliacis fama perennis agris.

supposed to exert itself over the whole kingdom, with half that vigour, or have the same effect, as if one were established in every county, which would so differently excite the farmers, when in their own neighbourhood; nor could the kingdom be benefited so much, or the country-gentleman, the clergyman, and the gentleman-farmer (who must be the chief support of them) any ways employ a little of their time, or money, to more advantage to themselves, or the community.

“Agriculture, beyond any other profession of gain, confers the greatest advantages on its own country, and those who consider it attentively, through its several stages of operation, may compare it to the leaves of a tree, which open, spread, grow verdant, die, and fall to the roots of the parent-trunk that produced them, where they turn to manure, and carry on re-production the ensuing year.”*

These societies would soon cause agriculture to be improved, and the principles of it better understood, particularly by that very valuable
set

* Harte's Essay, i. p. 4.

set of men, the country gentlemen of small estates, who are the chief support of every nation. The reverend Mr. Harte observes in his excellent essays, that, "in ancient times, estates kept in the same family for a great number of years; but the misfortune at present is, that the transitions of property are over rapid, and too many family seats have changed their owners:

Veteres jam migravére coloni.

Of which the principal cause seems to be, an ignorance in country-gentlemen, concerning the nature and culture of their own lands, their only true and real support,"*

The establishing a society in every county, especially in those remote from London, makes me not in the least doubt, but that they will be attended with the same effect, as a similar circumstance caused in France, according to the following anecdote.

"The

* Harte's Essay, i. p. 197.

“The famous La Quintinie, director of the royal gardens in France, obtained from Lewis the fourteenth, an abbacy for his son, in one of the remote provinces; and going soon afterwards to make the abbot a visit, (who was not then settled in his apartments) he was entertained and lodged by a neighbouring gentleman, with great friendliness and hospitality.

La Quintinie, as was natural, soon examined the gardens of his host; he found the situation beautiful, and the soil excellent; but every thing was rude, savage and neglected: nature had done much, art nothing.

The guest, delighted with his friendly reception, took leave with regret, and some months after sent one of the king's gardeners and four under-gardeners to the gentleman, with strict commands to accept of no gratuity.

They took possession of his little inclosure the moment they arrived, and having digged it many times over, they manured, re-planted it, and left one of their number behind them, as a settled servant in the family.

This young man was soon solicited to assist the neighbourhood, and filled their kitchen-gar-

gardens, and fruit-gardens, with the best productions of every kind, which are preserved and propagated to this very hour. What small beginnings lay the foundation of good culture among docile people!" *

What I mean more particularly to shew is, that husbandry will never arrive at half the perfection that it is capable of, till the garden-culture is more imitated in the field; nor has this principle hitherto been attended to, though it has been recommended in a very strong manner so long ago, by that great friend and patron of agriculture, Sir Richard Weston, who says, "the more the husbandman thinks fit to imitate the practice of the gardeners, by turning the foil, and keeping the earth free from weeds, the better tasted will his crops prove, and the more luxuriant to his own private emolument in particular, as well as the advantage of society in general."† On which performance, the Royal Society, in their transactions,

* Harte's Essay, 2. p. 44.

† Discourse on Flanders Husbandry, published by Hartlib, in 1645, p. 24. 4to.

actions, have made the following encomium; that England has profited in agriculture, to the amount of many millions, by following the directions laid down in that little treatise.

The facility with which the weeds are destroyed, in imitating the garden-culture, is another very principal advantage to the farmer. Mr. Randal, in his Semi-virgilian Husbandry, lays so much stress upon it, as to reckon it of much more consequence than dung, and says, that a good loam, finely pulverised, will produce, if clear of weeds, forty-eight bushels of wheat, where the same land, in equal vigour, but weedy, would produce only thirty-six, and that the same weedy land, if dunged just before sowing, would produce only twenty-four, by which there is a loss of twelve, or twenty-four bushels of wheat, and twenty loads of dung, worth at least one shilling per load.

It is also capable of producing more than double the quantity of vegetable food for cattle, on the same land, which must greatly increase the quantity of manure, which is of so much consequence to agriculture; nor should
the

the compost dunghill be in the least neglected, as in many places the materials may be collected only with the expence of carriage, for which reason, I have given a catalogue of all the manures found in England, as far as my memory could recollect.

As corn is the most necessary article produced by agriculture in almost all kingdoms, and the basis from whence arises such great profit to every state, which encourages its cultivation, but particularly to this, whose climate is peculiarly adapted to it, as witness the many millions we have gained since the exportation took place; it may be thought odd I should begin my first chapter with persuading gentlemen not to attempt the cultivation of it; it is necessary, therefore, I should explain myself on that head. The persons I particularly address these directions to, are gentlemen who live in the country, and because they keep three or four horses, imagine that by cultivating thirty or forty acres of land, they can keep their horses on the profit accruing from their being employed in raising of corn; but every gentleman, who sets out upon such a plan,

plan, may be assured that he will be deceived, unless he will condescend to be the mere farmer; to rise early to attend his plough, and see every requisite operation himself.

If he should employ many labourers, they will cost him double to what they will a farmer, as he cannot work with them himself, as the other does; he should therefore do all his work by the piece, that is possible, or else have treble the number at a time, that with two days overseeing them, his work may be done in that time, which otherwise would require six days of his attendance.

For such a small quantity of land, his implements of husbandry will cost him as much as if he occupied a hundred acres; and if his servants do not keep them clean, and in order, three or four years will have elapsed before he shall have cleared the money they cost.

If then all these matters are properly considered, farming, so far from being an amusement, will prove a fatigue, nor can the profit that may arise from so small a quantity of land when cultivated with corn, be possibly adequate to the trouble and expence attending it,
in

in disgust then he throws aside his plough; but had he instead of cultivating corn, raised some of the other crops I have recommended, the profits from them would have encouraged him to proceed with spirit; many of these as they are substitutes instead of corn and natural grass, for the support of cattle, will have the same good effect in keeping corn at a moderate price.

As corn is so necessary for the welfare of mankind, I would by all means advise country-gentlemen to cultivate a little every year, on the principles of the new husbandry; nothing will have so great weight with them, as the very proofs made on the spot in their own parish, as it can never be expected that the mere farmer will choose to make any innovations from the methods handed down to him by his ancestors, till he is fully convinced it is more profitable; nor can those, who only rent small farms, afford to do it, as every new method must be attended with some additional expence at first.

The drill-method, however, will have this advantage at least, until it can be introduced
with

with profit into general practice, of producing exceeding fine seed-corn, which is of the utmost consequence to the farmers, and is frequently purchased by them at a very high price.

The pleasures attending a gentleman's farming, are very justly described by the author of the Farmer's Letters. "But if the public good were not to be considered, yet the mere amusement of farming, to a gentleman of fortune, who has the least taste for country business, must plead warmly for its practice. Such farmers soon make a garden of their estates, at the same time that they improve the value of them.

What can be more amusing than experimental agriculture? trying the cultivation of the newly-discovered vegetables, and all the modes of raising the old ones; bringing the earth to the finest pitch of fertility, and raising plants, infinitely more vigorous and beautiful than any in the common tillage; using the variety of new machines perpetually invented, and observing their effects; in a small extent of ground, seeing the growth of an infinite

finite variety of vegetables, unknown in the common practice; perpetually enjoying the neatness of husbandry, that *simplex munditiis* of farming, which gives the most beautiful colouring to every object around, and pleases the refined imagination, with the enchanting prospect of all the elegance of nature*."

As, without doubt, the wanting a sufficient fund for distributing of premiums, is the principal reason against societies being established in each county, where they are most wanted; if a few gentlemen, therefore, would either subscribe, or lend a single hundred pounds, it would be enough, at first, to employ a gardener to cultivate a few acres of land, for raising of seeds, and where they are cultivated with proper care, their reputation is soon established: it is from the good management of the magistrates of Strasburg, in Germany, that their onion-feed has gained so much credit.

All plantations of onions, intended to raise seed from, are visited by them while growing, and if they are judged not to be properly cul-

* Farmer's Letters, p. 453.

tivated, or unfit for seed, one of their attendants immediately cuts them down with a scythe; when the seed is gathered, it is brought to them to be examined, then, if fit for sale, after being packed up in parcels, it is sealed with the arms of the city.

If any county-society, therefore, would take the trouble to cultivate seeds, and be careful, that none but good seeds should be sold, there is no doubt but they would soon raise a sufficient fund to allow premiums for the encouragement of agriculture, and be a great benefit to the whole county, in furnishing them with various kinds of good seeds: this is easily put in practice by a few public-spirited gentlemen in every county.

It may seem odd to some, that I should propose the entering so much into the plan of kitchen-garden crops, since these are in the general opinion rather beneath the notice of a gentleman, but as it is certainly the intention of almost every one that enters into agriculture, to reap some profit from it, in return for the great labour and expence he is at, it is
without

without doubt immaterial, whether the profit arises from wheat, or from cabbages.

*Lucri bonus est odor ex re
Qualibet.*—————

There is no one method of cultivating ground so advantageously as this; and though a gentleman may not choose to be at the trouble of sending his crops himself to market, when he has raised them, he will always readily find purchasers enough for them; and though he will not make quite so much profit this way, yet there will be very sufficient, and much more considerable than from the common method of farming: persons entirely out of the reach of markets, must be content with raising them for the seed, and for feeding of cattle; I have been so particular in shewing the value of the crops, not only because few authors have minutely explained it, but that, pointing out their immense profits, I might excite others to cultivate them.

As my intention, therefore, was to make the country life as amusing as possible, and my labour to be attended with some profit, I have

found it to be done with more certainty on the plan I have recommended, (as one acre in this manner, will produce as much as three or four in the usual way) than in the common method of cultivating the ground, like the farmers.

At this time, rural amusements being eagerly sought after by many, I flatter myself these observations may be of some use; but in particular to the country-gentleman, by saving him the trouble of turning to many different authors, and making several expensive experiments. When he does attempt any new experiments from books, let him first try them in a small way, upon rods of ground, afterwards upon acres, if then, he should commit errors, they will not cost much in rectifying.

The remarks which I have made abroad will, I hope, be thought not altogether useless, and particularly that method of destroying weeds in their navigable rivers, of applying which here, there will soon be an opportunity. As so many canals are making, this practice must in time be very serviceable and expeditious.

I have

I have endeavoured to be as exact as possible in my calculations, and there is scarce a method of cultivation I have advised, which I have not either practised myself, or seen practised by others; but if there are any material errors, I shall be greatly obliged to any person, who will have the candour to acquaint me with them, that they may be altered; and if they have any interesting accounts relating to agriculture or gardening, which they would choose to have submitted to the press, I shall with pleasure insert them in a similar production of this kind, which will shortly make its appearance, when presumed to merit the acceptance the public.

C H A P T E R I.

Particular sorts of Farming in England

adapted to quality of soil c 3

T H E

man for culture of water, observation about

raising, and improving of Kitchen garden

sorts - - - - - Page 1

c 4

S E E N

I have endeavored to be as exact as possible in my calculations, and there is scarcely a method of calculation I have omitted, which I have not either printed myself or transcribed by others; but if there are any material errors, I shall be greatly obliged to any person who will have the candour to acquaint me with them, that they may be altered; and if they have any interesting accounts relating to agriculture or gardening, which they would choose to have inserted in the paper, I shall with pleasure insert them in a number previous to this kind, which will shortly make its appearance, when printed to merit the acceptance of the public.

THE

and I

THE CONTENTS.

CHAPTER I.

*P*articular sorts of Farming or Agriculture
adapted to gentlemen, and more profitable
than the culture of corn ; observations about
raising and improving of Kitchen-garden
Seeds. - - - - - Page I

C H A P. II.

A plantation of Fruit-trees of different sorts, and the profits arising from them; an experiment made by planting one hundred peach and nectarine-trees against a north-wall, in a sandy soil; the many advantages of possessing a small Nursery; hints for raising Mulberry-trees for the feeding of Silkworms; King James's letter to the Lord Lieutenant of each County in England; new improvements in the cultivation of Strawberries. - - - - - 14

C H A P. III.

The Dutch method of training and pruning Fruit-trees, and of making an orchard with espaliers, in order to preserve the ground between the rows in a state fit for cultivation; with the value of elder-trees. - - - - - 45

C H A P. IV.

The present method of the London kitchen-gardeners cropping their ground, described, for a crop of Collyflowers under glasses, and five more crops on the same ground, viz. collyflowers, spinach, lettuces, cucumbers, endive, and autumn collyflowers. - - - - - 53

CHAP. V.

*Another method of cropping ground, to make it
produce four or five crops in a year; the pro-
fit of cabbages, asparagus, and many other
crops. - - - - - 61*

CHAP. VI.

*A plantation of aromatic herbs, roses and flowers
described; the profits attending them. - - 71*

CHAP. VII.

*An estimate of the yearly expence of a Stove forty
feet long; improvements in the management of
pines, strawberries. &c. a convenient oven,
and an expeditious method of watering the
plants. - - - - - 77*

CHAP. VIII.

*On raising forced Peas in a pit, asparagus, melons
and mushrooms. - - - - - 90*

C H A P. IX.

A Catalogue of most sorts of Manures found in England; short remarks, describing the soils, and uses, to which they are particularly adapted. - - - - - 100

C H A P. X.

Rational hints for improving of Parks, and the flavour of Venison; the profit of keeping deer and fish for sale; a cheap method of making fish-ponds, and of fattening kids, as a substitute for house-lamb. - - - - - 110

C H A P. XI.

A small artificial Warren to keep Rabbits in, in a lawn or garden, without their doing damage to the trees, &c. - - - - - 133

C H A P. XII.

A description of some new convenient Garden-tools and utensils; a small Cart, drawn by men, to do double the work of wheelbarrows; a simple machine for expeditiously laying out serpentine walks; semi-circular spades, to transplant trees

trees with ; band-glasses framed with wood, instead of lead, and tin spouts recommended, instead of leaden ones, to convey water down the sides of houses ; rules for keeping tools in order. - - - - - 139

C H A P. XIII.

A description of the bridge Sans-Pareil, near Calais ; a machine of boats and scythes, to cut the weeds in rivers ; an account of some new navigations carrying on in Flanders, and their methods of conducting them ; of various mills and machines in Holland ; of navigable canals, and their manner of travelling on them ; and of the advantages which would accrue to this nation, by having several such here. - - - 146

C H A P. XIV.

*A plan for Planting, at an easy expence, all the turnpike-roads of England with Timber-trees ; for improving the roads, paying off their debts, and decreasing the tolls ; and for establishing a nursery in every county, to raise seeds, and supply gentlemen with forest-trees, at a cheap rate, in order to encourage them to plant ;
with*

XXVIII The C O N T E N T S.

*with the present prices of plants of timber
trees, in nurseries. - - - - - 156*

C H A P. XV.

*Several useful Tables for Planters : an account
of the number of plants, or trees, which may
be planted on an acre of land, at different dis-
tances : a calculation of the value of the crops. 183*

C H A P. XVI.

*Various methods of feeding and fattening of
fowls, geese, ducks, and turkeys. - - - 186*

C H A P. XVII.

*Methods for preserving Orange and Lemon-trees,
and other curious exotics, in the Winter, when
planted in the ground, without tubs, and for
keeping frost out of green-houses, where there
are no flues. - - - - - 194*

C H A P. XVIII.

*An approved method which occasions the cuttings
and layers of trees and shrubs, which are dif-
ficult*

*ficult to strike root, and also grafted trees, to
grow. - - - - - 216*

CHAP. XIX.

*Improvements in Cyder, Perry, and Made-Wines,
to make them equal to several foreign sorts; the
profits of planting fruit-trees for wine. - 222*

CHAP. XX.

*On the various uses to which Potatoes may be con-
verted, the method of making Starch from them. 249*

CHAP. XXI.

*An improvement in raising firm and well flavoured
Cucumbers, and particularly for seed. - - 252*

CHAP. XXII.

*A method of feeding Calves with a mixture of hay-
water, and a little milk; whereby four or five
calves may be reared in one season, with the
milk of one cow only. - - - - - 255*

CHAP. XXIII.

Methods to improve barren lands, by planting various sorts of Trees, but particularly larches, firs, poplars, and willows; with the advantages of barking trees, while standing, to increase the solidity, strength, and duration of timber, proved by experiments. - - - 259

C H A P. XXIV.

Hints to improve the flavour of the London Milk, by the use of malt-dust, burnet, lucern, carrots, and cabbage-turneps; testimonies of their effects, in producing plenty of rich milk. - - 270

C H A P. XXV.

A Proposition of Electrical Experiments to destroy Insects on trees, and particularly on plants in stoves and green-houses: an account of a newly-invented fumigating bellows, calculated to kill all sorts of insects. 289

A Catalogue of English Authors, who have written on Husbandry, Gardening, Botany, Natural History and subjects relating thereto, arranged in their Chronological Order, with remarks on some of the Antient Writers. I

An Alphabetical Catalogue of the Authors Names and their Works.

A COPPER-PLATE,

Describing the End of the Stove, and a Pallisadoe Hornbeam Hedge, instead of Park-paling. - - - - - 88

CHAPTER I.

Particular parts of husbandry and agriculture, as they relate to gentlemen, and are profitable to the culture of land, and the raising and improving of husbandry goods.

THE study and practice of husbandry, being now patronized by the great, in almost every country of Europe, it is become the fashion of men of taste to engage in it.

The W O R L D

A Catalogue of English Authors, with their works
in six classes, viz. History, Geography, Poetry, Prose,
and Miscellaneous. The works are arranged in their
Chronological Order, and the names of the Authors
are given in full, with their birth and death dates.
The alphabetical index of the Authors is given at the
end of the volume.

A Copied Plate

Describing the Life of the late Sir Isaac Newton,
and his Works. The Plate is divided into two
parts, the first containing a list of his Works,
and the second containing a list of his Manuscripts.

A Proposed Catalogue of the Works of the late
Sir Isaac Newton, and his Manuscripts. The
Catalogue is divided into two parts, the first
containing a list of his Works, and the second
containing a list of his Manuscripts.

Continued

T R A C T S

ON

AGRICULTURE AND GARDENING.

C H A P T E R I.

Particular sorts of farming and agriculture adapted to gentlemen, and more profitable than the culture of corn ; observations on the raising and improving of kitchen-garden seeds.

THE study and practice of rural œconomy being now patronized by the great, in almost every country of Europe ; it is become the fashion of men of taste to engage in
B it,

it, and corn is the first attempted by almost all. But I believe experience has taught every gentleman, who has had a farm in his own hands, that the profits have been very small in comparison of what he expected; owing to the impossibility of his attending to the minutiae which afford the greatest profit to the farmer. The only thing he has to do, is to call in gardening to his aid. Gardening and Agriculture are so closely connected, that the latter will always prove the most beneficial, the nearer it approaches to the former.

Agriculture is the rough culture of the earth, and that, generally, by the mere peasant.

Gardening is a more refined culture, and by a skilful artist.

Where the one makes only a profit of thirty or forty shillings from an acre of ground, the other frequently makes as many pounds; and as a gentleman cannot possibly live in the country without some ground in his own hands, I shall recommend one branch of agriculture particularly, for his amusement, (besides several others for the gentleman-farmer) which I think is as entertaining as any, practised by very few, and more certain to be attended with profit than the raising of corn.

It

It is ten to one if he receive any profit by cultivating corn. Let his only reason for introducing it, and that sparingly, be on the principles of the new husbandry, either to convince by degrees his tenants of the great utility and advantage of drilled crops, or to inspire them with a readiness to adopt any new and useful improvement.

For certainly the earth may be made to produce much more than it does by the common methods of cultivation: this advantage by the superior methods of a gentleman's cultivation, not only the wheat he raises will be greatly improved, but a particular advantage will accrue to the neighbourhood by introducing good feed-corn amongst them.

He may venture to raise hay for his own use, especially as he must keep some grass-lands in his hands for cattle; this needs but a trifling attention in comparison to that required in the tilling of ground for corn. Yet what I would particularly recommend to him, if he must meddle with the plough, and expects profit from it, is

The raising of Garden-seeds.

No one, the least conversant in agriculture or gardening, but must have frequently met with disappointments in the seeds he has bought from seeds-men and nursery-men: And yet, how can it

KITCHEN-GARDEN SEEDS MORE

be otherwise? Even in most of the principal nurseries in England, whose extent is twenty or thirty acres, scarce a single one of those acres is adapted to the raising of seeds: very few of the principal seeds-men in London have land to raise the seeds they sell; nor is it to be supposed they can attend to that branch without neglecting the business of their shops. The quantities of seeds which they sell, will, on enquiry, be found to have been procured chiefly either from country, or gentlemens gardeners; as thus:

After the first growth of beans, peas, french-beans, &c. have been gathered for the table, the others, which are too old for eating, and not near so vigorous as the first for producing strong seed, are what are left for this purpose.

The smallest collyflowers, lettuces, leeks, after the best have been eaten.

Cabbages, brocoli, borecole, favoys, all growing so near together, that each farina must inevitably mix with the other: and perhaps most of these are produced only from the weak side shoots of the stem, after the cabbages, &c. have been cut off.

Carrots, parsneps, turneps and radishes, after the prime have been gathered, the rest are left in the ground; whereas they ought to be transplanted,

planted, and only the finest should be picked out to raise seed from.

Melons and cucumbers are planted so near together that the farina intermix and thus each degenerate.

Seeds are often taken from onions not only half rotten, but, by being kept too long out of the ground, impaired of half their vigour, which they, perhaps, have shot, before their time of being planted.

From the above too just description can it be expected that good seed can be produced? The seeds-men are not to blame; they have no where else to apply, nor can they attend personally to see the crops while growing, or examine if the sorts be true. Indeed, to supply their customers, they are often obliged to import large quantities from Flanders; but we must not suppose these are raised in any better manner: having been for many months together in several of the provinces of the Low-countries, I can aver that the flavour of many of their esculent roots and herbs was frequently so bad, that no Englishman could relish them: As the soil in which they grow consists only of bogs and morasses, drained by cutting ditches, and leaving narrow slips of land, the mud issuing from which raises the ground perhaps only six or

eight inches above the water, and communicates with the navigable canals, kept up by the sluices, the highest in summer, the roots drawing of course their nourishment from nothing but soft mud, must be exceedingly unwholesome.

Would any gentleman make the experiment, by sowing one acre only at first in this way, with seeds of different sorts, I am certain he would find his advantage by it, and soon be induced to cultivate many more.

There are seeds-men enough who will readily engage for any quantity to be raised for them, and, if within twenty miles of London, come themselves to see the crops growing; thus the seeds raised will always fetch a higher price than others. A field seems to open for a much greater consumption, by the raising of every different species of grasses, now coming so much into practice, and for which there will be a demand, at a great profit, for several years to come.

Were the credit of our seeds therefore once established abroad by such a practice, it would perhaps soon become a very extensive and increasing branch of foreign commerce; or, at least, we should prevent the large and frequent importation of many sorts from Flanders and Holland. I would propose sowing or planting all the sorts intended

tended to raise seeds from, in drills, at very wide distances, in the manner directed for several sorts in the Museum Rusticum. I will give a specimen of the profit, by calculating the expence and produce of an acre of lettuces, and an acre of onions.

Sow about two ounces of white coss lettuce-seed on four perches of rich ground, well digged in February or March, in a warm situation, on beds four feet wide, leaving a path of one foot to admit of room to weed them; hoe them as soon as possible, and leave each lettuce at about the distance of four inches, keep them clear from weeds, and if the earth be stirred two or three times with the hoe, whilst in these beds, it will be of service.

The land where they are to be planted should be a lightish sandy loam, in good tilth, if possible, on a gentle slope to the south, that the seed may ripen the better; it must be gotten into good order, by the beginning of April, by several ploughings and harrowings, or digging, which is the best; when the lettuces are about five inches high, (for they do not transplant well when larger) let beds be marked out four feet wide, with a path of two feet betwixt each bed; then plant two rows of lettuces at two feet square: keep the beds

well hoed, and let them be earthed up with the earth in the path, either with the plough or spade; the paths also should be horse-hoed, to keep them clear of weeds, and to prepare them for a crop. Before the ground be digged or ploughed the last time, a row of rotten dung should be laid on it, in rows, at the distance of six feet, and spread about two feet wide, to correspond with the places where the lettuces will be planted; in June give them a top-dressing, of very rotten dung, which should be forked in as soon as laid on the ground, and not left to dry, as is too frequently the case by which its fine oily particles are evaporated; if rotten dung cannot be procured, apply some liquid manure: If the Autumn proves wet, lettuces are very apt to be mildewed before the seed be ripe; on that account, therefore, endeavour to bring them as forward as possible early in the season; were it not for the trouble and expence of preserving them under glasses in the winter, the seeds sown in the Autumn would always be preferred to raise seed from; but when large quantities of seed are wanting, this is impracticable.

VALUE OF LETTUCE-SEEDS.

9

The expence of raising an acre of lettuces will be nearly as follows;

	<i>l.</i>	<i>s.</i>	<i>d.</i>
Digging 4 rods, 1s. 2 ounces of seed	2s.	0	3 0
Hoeing them to the distance of four inches, and stirring the ground twice afterwards,	-	-	0 2 0
Digging 4os. transplanting 8s. hoeing three times and earthing them up	2os.	3	8 0
Rent, tythes, dung and top-dressing, and cleaning the seed,	-	-	4 7 0
			£8 0 0

An acre planted in this manner will contain 7260 lettuces, and on the supposition that each only produces a quarter of an ounce of seed, which is but a small allowance, there will be one hundred, thirteen pounds and a half of seed, which at only six shillings a pound amount to 34l. 1s. I have however sold it sometimes for twelve shillings a pound. The seedsmen generally sell it retail for nine-pence and twelve-pence an ounce, and inform me that, one year with another, they give eight shillings a pound for the white coss, which is the sort for which there is the greatest demand. If only two rows, on a bed four feet wide,

wide, are thought to be at too great a distance, three may be planted ; but, in general, the more distinctly plants are set for seed, the greater will be the produce. However, to observe the difference I would recommend some few beds with three rows.

The same number of favoys for a winter crop, for the ground may be planted in the intervals in August; these at a halfpenny each profit, will produce 15l. 16s. 6d.

On such beds also may be planted five rows of onions, nine inches asunder, which will make 48400 bulbs, or about 121 bushels. The land must be well dunged for them. They require, on account of their tender stems, a warm situation, sheltered from the westerly winds. A very large onion is not the best to plant for seed. I should not have believed it, had I not been told it by others, and since experienced it myself. Let only the middle-sized well-shaped onions, about 400 of which fill a bushel, be planted; they must be neither very large nor very small. Let the dung be laid on the ground in rows, where the beds are to be, and in January digged in, and then planted with onions. They should be kept in a very dry place, during the winter; the least moisture causes them to shoot, and weaken the root; whenever they do shoot, nature indicates that they want to be

be planted. Let the ground be well hoed, and kept clean from weeds after they are planted, and just as they begin to spindle, let them be carefully earthed up with a spade, and with some of the earth from the intervals to support the stems; this is the last time any thing can be done amongst them safely, the pulling a few large weeds out by the hands excepted: when the flower-stems are at their full height, the stakes should be put down, and a soft-twisted small string put from stake to stake, to preserve the stems from falling.

Expences of an acre of Onions for seed.

	<i>l.</i>	<i>s.</i>	<i>d.</i>
Digging 40s. planting 121 bushels at 2d.	3	0	2
121 bushels of onions, 18d.	-	9	1 6
Hoeing and earthing 20s.	-	1	0 0
Stakes and string 15s. cleaning the			
feed 20s.	-	1	15 0
Rent, tythe and dung,	-	3	0 0
	<u>£ 17</u>	<u>16</u>	<u>8</u>

On the supposition that each onion will
 produce a quarter of an ounce of seed,
 one may expect 756 pounds, which at
 18d. per pound amounts to

56 14 4

In

12 VALUE OF KITCHEN-GARDEN-SEEDS.

In the paths there is room enough for a crop of favoys, coleworts, &c.

All the sorts of cabbages, turneps, favoys, turnep-rooted cabbage, and several others, will employ the ground two years; the most excellent instructions for raising them, are those recommended by Mr. Baker in the *Museum Rusticum*, and Mr. Randall in his *Semi-virgilian husbandry*: the intervals, when they are raised in that manner, will be ready to have them planted in for seed, for these must all be transplanted.

By these means some adequate judgment may be formed of the value of such crops for feeding of cattle, and a large quantity may be raised. None but the prime plants, and absolutely the true sorts, should be preserved to plant for seed. If this be observed, it will establish their character, and greatly enhance the value of the seeds.

I shall here give a list of the principal sorts wanted, to these may be added many of the new grasses, for the cultivation of which the society for the encouragement of arts, &c. have offered premiums.

Cabbages,

Cabbages, va-	Asparagus,	Endive,
rious forts,	Spinach,	Melons,
Savoys,	Beets,	Cucumbers,
Collyflowers,	Carrots,	Cresses,
Borecole,	Turneps,	Mustard,
Brocoli,	Leeks	Celery,
Turnep-rooted	Onions,	Celeriac,
cabbage,	Parsnips,	Finochia,
Peas,	Radishes,	Carraways,
Beans,	Parsley,	Corianders,
Kidney-beans,	Lettuces,	Cabbage-turnep.

It has happened sometimes, that when a neighbouring gardener's crop has failed, or he has had a great demand for some particular sorts, I have sold them to him at a good price: in case of a long frost, an acre of cabbages and savoys will sell at a vast price, if it be either within reach of the London markets, or any large town.

I would likewise recommend to gentlemen the culture of madder, woad, teasles, liquorice, and such plants. They are uncommon varieties and attended with considerable more profit than corn, or even fruit-trees.

CHAPTER II.

A plantation of fruit-trees of different sorts, and the profits arising from them; an experiment made by planting one hundred peach and nectarine-trees against a north wall, in a sandy soil; the many advantages of possessing a small nursery; hints for raising mulberry-trees for the feeding of Silkworms; new improvements in the cultivation of Strawberries.

HA V I N G a triangular piece of ground, of ten acres, walled in, I was unwilling, although it fronted the north and inclined a little to the east, to lose four hundred yards of my wall by not planting it with such choice fruit-trees, as would not grow equally well on dwarfs or espaliers. The soil was a sandy loam, of about twenty inches deep; underneath it was sand for many feet.

The natural warmth of the soil, assisted by the sun-shine which visited my wall first till ten in the morning, and then a little in the afternoon, made me conclude it would not be improper for peaches and nectarines. I therefore ventured to plant the whole

whole wall with one hundred trees at the distance of twelve feet. I did not choose, on account of the situation of the wall, to plant neither the very early nor the very late sorts, but preferred those, which would be ripe in August or September; such are the early Purple, the Chevreuse, the red Magdalen, the early Newington, the Royal George, the Montalban, the Bellegarde, the Noblesse, the Bourdine, the Admirable, and the Chancellor Peaches; the Newington, the Roman, and Temple nectarines; all these sorts are in general good bearers, and not subject to be blighted.

My trees grew surprisingly well, made shoots extremely vigorous and healthful, nor did I ever perceive them more blighted than the trees on the south wall.

The borders were eight feet wide; it is proper to have them nearly to correspond with the height of the walls; for, in general trees against walls extend their branches according to the extent of earth there is for their roots to range in; it is quite needless to build high walls for fruit-trees, if you do not allow room also for their roots: the borders were constantly kept clean from weeds, and sown with none but very light crops, which did not stand long. I reserved them particularly for sowing of different plants, which were to be soon transplanted.

The

The only manure I used, though in a sandy ground, was sea-coal ashes sifted fine; I took this hint from Hitt's treatise on fruit-trees; an author whose method of pruning deserves much commendation, any person the least skilled may easily practice it; since every branch of the tree is so distinct, that you immediately know what to do with it.

In the third and fourth years I began to have fruit, and found it to be as fine, and as well flavoured as that which grew on the south wall, except being a fortnight later, before ripe. Finding the peaches and nectarines thrive so well, I have since planted some early vines betwixt each, to run on the top of the wall, to which they must be kept in proper order, by regular pruning; but this method can only be recommended to be practised on a dry gravelly or sandy soil; for grapes, peaches and nectarines in general, want all the assistance in this climate, that art can afford them: my motive for making this experiment, was, because I found the peach and nectarine-trees, against the south-wall, frequently killed by the dryness of the soil.

The roasting of autumn peaches gently, as an apple is roasted, greatly improves their flavour; they are eaten with hot wine, or burnt brandy and sugar.

Having left a walk of four feet, I planted on a border of six feet wide, some Breda and Brussels apricots,

apricots, at the distance of sixteen feet and a half from each other. No other sorts either of apricots, peaches or nectarines, the bourdine peach excepted, are usually planted as dwarfs or espaliers; the footstalk of the fruit being too tender. As apricots do not bear the knife well, I planted them without shortening any of the shoots, by which I saved a year at least; nor did I prune them at all till the third year, when they began to bear; then I only topped some of the most luxuriant branches, and cut out those which crossed each other. From the success of these trees, planted as dwarfs, I had reason to think they bore more fruit than, than when trained against an espalier; at least, they looked more natural, and gave less trouble; the fruit was more easily gathered, nor was it so liable to be blown down by the wind, as when the stems were five or six feet high.

The principle art of pruning fruit-trees, consists in knowing, from what wood the fruit is to be produced; he, who is not a perfect judge of that, will frequently err, by not providing a stock of fruit-bearing branches on every part of the tree.

Peaches and nectarines produce their fruit from young wood, generally of only one years growth, and never older than two; care, therefore must be taken to provide new shoots annually in every
C . part

part of the tree, for if that be neglected, you cannot expect to have much fruit.

Apricots and plums bear many short spurs or studs, of two or three inches long; these must be preserved, as they produce blossoms in plenty; cherries also bear them, but their shoots, and especially the shoots of the morellos, should scarcely ever be shortened, except it be to fill up a vacancy in the wall.

The edges of the borders were planted with scarlet strawberries, at the distance of fifteen inches.

Good fruit bears a great price, if within the neighbourhood of London. A fruit-gardener assured me, that, from such sandy ground as mine, he could make 20*l.* a year, per acre, clear of rent and expences, if he planted only strawberries. From the success therefore of my trees, I shall shew the profit that may be made from an acre of ground, planted in the following manner:

By choice, I would have the ground extended in front to the south, and in depth half equal to the length. Suppose it then to be sixteen perches long and ten wide; let it be well digged and laid into beds six feet and a quarter wide, with a path of two feet betwixt each. Plant every other bed with fruit-trees, at a perch, or sixteen feet and a half

half distance ; then plant a gooseberry or a currant-bush betwixt each fruit-tree ; plant these also on the other bed at eight feet and a quarter distance. There will then be sixteen rows with nine, and fifteen rows with nineteen gooseberry, or currant-bushes ; and there will be 160 fruit-trees, at a perch distance, having 429 gooseberries or currants planted between them.

The trees being planted, plenty of mulch must be laid round them ; this will prevent their wanting water in the summer, and very few of them will fail. Then sow your ground with onions, which will defray your expences, the first year : sow them early, that they may soon come off, and carry them to dry elsewhere. Currants are more profitable than gooseberries, and therefore care should be taken to plant the large Dutch sort, and only a few gooseberries. Immediately afterwards dig up the ground and plant it with strawberries. If they be planted early in autumn, a moderate crop of fruit will be produced the next year. The scarlet, wood, and alpine strawberries may be planted at the distance of fifteen inches in quincunxes ; the hautbois at the distance of twenty inches, and the chili, or carolinian strawberries, at the distance of two feet.

I am convinced, that much more fruit will be produced in this manner, than if the plants were

set nearer to each other. In February your ground should be digged up with a three-tined fork, and some coal-ashes or rotten dung should be spread over the plants. In summer the beds will want two or three hoeings, and the runners must be constantly pulled off the strawberries, except you leave here and there one wherewith to make a fresh plantation, or to replace any which fail; these should be the strong plants, which are produced near the old roots: by all means fork them again before winter, and spread some coal-ashes over them, then let the beds lie rough till spring.

About the third or fourth year, the strawberries will want to be fresh planted. It were best to plant only half at a time, that the profit and labour may be the more equal each year.

When they are transplanted, dig up the walk, and having thrown its earth upon the border, fill the walk up with old earth, taken from thence; thus so much fresh earth will be gained, but yet, for one year I would advise the having a crop of onions, spinach, radishes, lettuces, or some such light crop, before the strawberries are planted again; therefore, as soon as the fruit is gathered, pull up the plants, trench it very well, leave it in ridges till spring, and then spread some dung over it, before the crop be sown: the crop ought to be cleared off the ground early in the summer, that
there

there may be at least a month's vacancy, to trench the ground again, and prepare it for the strawberries, which should be planted early in September.

At this second planting they should not be set so near the trees as at first; and after these two crops, if the strawberries begin to fail, sow the ground with some other small crops for two years, before the planting of strawberries again, and let it lie fallow each winter.

The sorts of trees I would recommend are, the Breda, and the Brussels apricot, almond, plum, cherry, some few apple and pear-trees, and of these sorts the most esteemed, two or three barberry and some mulberry-trees; the fruit of these thus raised is larger than when on standards.

	<i>l.</i>	<i>s.</i>	<i>d.</i>
The 160 trees will cost about 12d. each.	8	0	0
429 gooseberry or currant-trees, 3d. each,	5	7	3
We will reckon the strawberries at - - -	0	12	9
Besides the expence of planting. - - -			
	£. 14	0	0

The first year's profit will arise from the onions; the second from the strawberries; the third year from the strawberries also; with some fruit besides the gooseberries and currants. In the fourth year every thing will be in perfection, though the

crops of fruit will not be so large as afterwards ; and the profit will be at least as follows, reckoning them so low as

	<i>l.</i>	<i>s.</i>	<i>d.</i>
160 fruit-trees, 12d. - - - -	8	0	0
429 gooseberry and currant-trees, 6d. 10	14	6	
The strawberries - - - - -	11	5	6
	£.30	0	0

The expence of twice forking the ground, of ashes and hoeing, cannot exceed 3*l.* allowing 40*s.* for rent, there will remain 25*l.* profit. I believe that no one will think I have rated the fruit too high ; in good years many trees will be worth from five to eight shillings each. For the sake of variety, few gentlemen could dislike an acre or two planted in this manner, and if it be near the house, a large walk may be cut through it, either strait or serpentine ; if the border be intermixed with some few flowering shrubs, at spring, when the trees are in bloom, no part of the garden can afford a more pleasing sight.

I must not omit mentioning that, in a strawberry plantation, it is by all means necessary to have water commodious to it ; if the season chance to be very dry, when they are in bloom, it is absolutely

re-

requisite to water them as well as fruit-trees, and particularly wall-trees. Trees planted against walls are supposed to bring in a profit of a shilling per yard, in length. If this calculation be a just one, and any gentleman can easily satisfy himself whether it be so or not, by computing the value of his own fruit, it would pay very well to enclose some ground with walls or pales on purpose to plant fruit-trees against them, besides greatly increasing the worth of his ground within, for many valuable early crops.

Nothing contributes so much to prevent the thriving of fruit-trees as their being budded or grafted on improper stocks, or stocks which are not adapted to the soil they are planted in, especially pear-trees. Nursery-men are also too apt to deceive people; if they have not the sorts ordered, they frequently send such as they have. I would advise every one who has many fruit-trees, to raise some few stocks himself: by these means he can always be accommodated with the sorts he wants, and they will cost him nothing but a little labour.

It is absolutely necessary to be always provided with some spare nectarine and peach-trees, since blights kill several; if kept trained, by carefully transplanting them, or having some planted in baskets, they will be always ready, have fruit the first year after planting, and save much; for the

price at which the nursery-men sell them, is from 5s. to 7s. 6d. a tree: a reed hedge, three or four feet high, and three years pruning will be sufficient.

Where trees can be re-planted immediately after taking them up, they do not suffer much by the removal, and frequently bear fruit the first year: but let all trained trees be planted in autumn. This is one of the many advantages which attend the possession of a small nursery.

An account of stocks proper for budding and grafting fruit trees.

The proper stocks for budding peaches and nectarines, are the green gage plums, raised either by stones, or layers; many of the tender kinds which are liable to be blighted, must be twice budded.

For apricots, provide the red wheat plums, either by stones or layers; their acid juice will help to correct the mealiness of the apricots, and the stocks are tolerably free from gum and suckers.

For almonds, the muscle or red wheat plums.

For plums, the green gage, because, although the bud should die, a good fruit will be produced from its own stock.

For

For cherries, the small black and the wild red cherry; for dwarf cherries for forcing, bud the early May cherries on the bird cherry.

For apples in general, crab-stocks; the dwarfs and espaliers excepted; for those which produce sweet fruit and are apt to turn mealy, codling stocks; for those with an acid flavour, paradise stocks.

For pears, the pear and quince stocks; if the soil be dry and gravelly, quince-stocks will not succeed.

The quantity of walling necessary for each fruit-tree.

The allowing of the trees a proper space of walling, is a great advantage to them; in general their branches extend in proportion to the growth of their roots, and therefore high walls, whose necessary thickness increases the expence, are needless. Twelve feet contain a very proper height for the wall of a fruit-garden: against such a wall plant pear-trees, grafted on a free or pear stock, at sixteen feet distance, which is nearly two hundred feet of walling to each tree. To a pear, on a quince stock, an apricot, an almond, a plum, a cherry (the morcellos and May-dukes excepted) a mulberry, and a fig, allow one hundred and fifty feet; and plant them at the distance of twelve feet and a half. A
peach

peach, a nectarine, a morello, and May-duke cherry, require about one hundred and twenty feet; they therefore may be planted at the distance of ten feet: if the wall be either higher or lower than twelve feet, vary the distance, allowing the above-mentioned number of feet to each tree.

Between the peaches and nectarines is a very proper place for vines, which will always fill the lower part of the wall; if pales or walls be erected on purpose for vines, four feet are high enough; they should be planted at the distance of eight feet: thus thirty two feet are allowed to each.

In the management of wall-trees, the first care, after planting, is to lay mulch two or three feet round the tree: in spring, before they blossom, stick some branches of yew, fir, beech, or fern firmly in the trees, to break off the winds, and shelter the young fruit; place boards ten or twelve inches broad at the top of the wall, to throw off the perpendicular wet; and when they are in bloom, if there be likelihood of a frost, in the afternoon, it is proper to water the borders a little, to cause some dew to rise; this will make the sap circulate more freely, and prevent the trees from being so much blighted.

It has been lately found a very great improvement to spread some old fishing-nets, over the trees at spring, to guard the blossoms and young fruit; but

but, on account of the largeness of the meshes, it must be put double over them.

When the fruit is set, and of the size of a large pea, take the screens away by a branch or two at a time, and not the whole together; if nets are used, they must remain until the fruit is quite out of danger: then thin the fruit with a pair of scissars, nor by any means let them touch each other: if any fruit grow near a nail, which it will soon touch, change the nail, and alter every shred which improperly confines any branch.

Look over the trees in this manner once a week; the trouble will be well repaid. If the weather be very dry, water the borders once in ten days with some water and liquid manure; if on the contrary, the weather be wet, give them a slight top-dressing with salt, foot, blood, pigeons-dung, or ashes; any one of these will do, and greatly increase the size and flavour of your fruit.

As they grow, thin them in such a manner that when they become as big as a nutmeg, they may not be nearer than four inches to each other.

If any insects attack the trees, immediately apply quicksilver, by the method, directed in the Museum Rusticum, of boring a hole with a smooth awl, in two or three of the branches, but sloping, so as not to touch the pith, and about an inch deep;

deep; fill it almost full with quicksilver, and then stop it with a bit of wax. I have tried it on thirty cherry-trees, and the insects disappeared in three days. It were proper also to apply the fumigating bellows with tobacco, as described in the twenty-fifth chapter of this work; various experiments have been made with it in the neighbourhood of Kew and Richmond: and every person who uses it, finds very great success from it.

To prevent the ants from reaching the fruit, some use a small leaden trough, an inch and half broad, placed at the bottom of the wall, and kept filled with water; a piece of cloth should be put round the stem of each tree, and rubbed over with tar; and if some of the large sort of ants were introduced into the garden, they would soon destroy all the others; I must again plead in favour of the fumigating bellows, as it is probable that in this instance, they would effectually kill these pernicious insects, by forcing the smoke into their nests.

If it prove a wet autumn, give the borders where the late peaches grow, a top-dressing of salt, foot, ashes, lime, or blood, and by all means prune all fruit-trees before the winter, those excepted that are too luxuriant, and leave all the branches unnailed during a month, except two or three of the principal ones, to prevent their breaking.

breaking. This not only cleans them from dust and filth, but greatly refreshes the trees. There are great advantages in pruning before winter; there is then more leisure time, the borders have nothing on them, and when the trees are finished, they may be laid neat for all the winter; whereas if it be deferred till spring, the crops by being trodden on, are damaged; if the weather chance suddenly to be warm in February, there is sufficient business for all hands, and perhaps the trees will grow too forward before they can be attended to; besides which, many of the blossom-buds will unavoidably be knocked off. Dr. Hales, after assigning many reasons for pruning trees at this season, says, p. 373, "the reasonableness of this practice is farther confirmed by the experience of Mr. Palmer, a curious gentleman of Chelsea, who has found that by pruning his vines, and pulling all the leaves from them in September, or as soon as the fruit was off, they have born greater plenty of grapes than other vines, particularly in the year 1726, when, by reason of the extreme wetness and coldness of the preceding summer, the unripe shoots produced generally very little fruit."

If there be not any crops upon the borders, fork them up, and let them lie rough during the winter: but lettuces may safely be planted on them, or collyflowers to be transplanted in spring;
some

some radishes may also be sown, but no stronger crops than such as these. In spring it will be necessary slightly to inspect the trees and to cut off the ends of such shoots as may have been killed in the winter.

If, as various experiments have proved the practicability of the plan, the raising of silk should ever be practised in England, an immense profit would accrue from a plantation of mulberry-trees thus managed. I should imagine, that if the trees were kept in the nature of stools, their leaves would yield much more nourishment for the worms: at least, they would be forwarder for the support of them when first hatched. However, the experience of one or two years would soon ascertain that point; if this food proves so as to cause the worms to burst, a great number of standards might soon be raised from them: the lower they are, the easier the leaves will be gathered.

Since I wrote the above, I find that my conjecture is in some measure right; my fear about the too great luxuriance of the young shoots was groundless. Mr. Harte, in his Essay, takes notice of the inhabitants of silk countries, who sow the seeds of the mulberries, in order to have fresh luxuriant leaves for the young worms; and this is the practice in China: in Switzerland the trees are pruned in the manner of shrubs, to make the
leaves

leaves come earlier, and prove tenderer for the young worms: the great difficulty there, is to have food ready against the time of their being hatched. A tree planted against a south-wall and covered with mats, will be two or three weeks forwarder.

The society for the encouragement of arts, &c. having offered premiums for the planting of mulberry-trees, in order to raise silk, I sent them the following letter towards forwarding the plan. I flatter myself that an insertion of it, here, may be of use to some, especially if the plan therein recommended should ever be carried into execution.

Those who want to be more fully informed about the method of managing the silkworms, should consult Mr. Pullein on the culture of mulberry-trees and the breeding of silkworms. 8vo. 5s. 1758.

The society also have models of the best kind of reels, which are used abroad for reeling the silk.

To the Society for the encouragement of arts, &c.

GENTLEMEN,

FROM an experiment which I made some years ago in raising about two thousand silk-worms, I found the great facility with which it was to be done, and have ever since wished to see it practised by those who had leisure and proper opportunity to do it; but the great difficulty attending it, has always been owing to the small quantity of leaves to be procured, as few gardens have above one mulberry-tree in them, and many people are unwilling to permit their leaves to be gathered, from the notion of its hurting their trees. These difficulties I have lately seen, with great pleasure, in some measure, likely soon to be removed, by your generous offer of the premium of one hundred pounds, for planting at least one acre of ground with mulberry-trees; and that the trees, plants, seeds, &c. for which the society offered premiums, might be procured by applying to Mr. Shiells, nursery-man at Lambeth. I therefore went to him, not doubting but that I should find a sufficient number of trees for planting many acres; but was greatly surprized to find that he had

had not a number adequate to your design, of five and six feet high, which is the size required, and the only proper one for such a plantation; with about an hundred larger, and a plat of small ones. He said he was not present the night that the premium was fixed, else should have informed the society of the number and size of his trees.

From this circumstance, gentlemen, you see, that it is not probable there can be above one attempt made, and even not that, without applying to many other nurseries, in very few of which you will find so many as fifty mulberry-trees, all sizes included. This I can safely say from my knowledge of most of the principal nurseries in England. The distance you require them to be planted at, being ten or twelve feet asunder, and at least one acre to be so planted, it will take either three hundred and two trees, at ten feet distance, or four hundred and thirty-five at twelve feet distance, for each acre. As this is the case, (with submission to your better judgment) I beg leave to propose, that against the next year, the premium may be changed to the following purport, or somewhat similar thereto, as it is not probable that your premium can ever be claimed, unless some persons procure trees from abroad, to plant according to the present plan.

D

Let

Let therefore a premium of about four or five shillings be given for every mulberry-tree planted, and producing silk, but not in less number than forty or fifty trees : this will induce many persons to make such a plantation, who have not in their power to plant a whole acre, nor could manage so large a quantity of worms. Many families of small fortune, who have three or four daughters, would be easily persuaded to engage in such an undertaking as this, as the premium will repay them the expences of the plantation, and the overplus assist them to provide reels and proper accommodations for the worms ; or else, let the trees be given to those persons who will apply for them, on paying some trifle for them, as in King James's reign.

A few hundred pounds laid out in this manner would, I believe, in a very few years, spread the cultivation of silk all over the kingdom. Certainly there cannot be any one plan undertaken, which promises more advantage to the public, as it would be the means of providing a genteel employment for many families of small fortunes, whose situation in life is the most to be pitied of any. Nor should a plantation be on any account omitted on some of the glebe land in every parish ; for if the clergyman's own family cannot, or do not choose to raise the silk, he may sell the leaves,
and

and it will make a pretty addition to a small living. From the fruit too a very good rich wine and cordial may be made. *

Neither would it be amiss to have a plantation of mulberry-trees made at the Foundling-Hospital, the Magdalen-House and the Asylum; for by this means a great number of persons would learn the art of breeding the worms, and managing the filk, and soon spread the most proper methods throughout the whole kingdom.

I have also taken the liberty to insert King James's letter for the propagation of mulberry-trees; to shew in what manner he attempted it in 1608.

As the chief difficulty will be the raising a sufficient number of trees, from the slowness of their growth, for they will not grow above a foot in a year; no time should be omitted in endeavouring to raise them, and proper encouragement should be offered to Mr. Shiells, the soil of whose nursery happens to be particularly adapted for them, to engage him to raise a few thousands, and I think

D 2

their

* The King of Prussia, I am informed, allows a premium to the clergy of his kingdom, for every pound of filk they produce, to encourage the cultivation of it, as it is an employment they can engage in, without any impropriety to their profession.

their growth might be accelerated about two years, by raising them on a hot-bed, whether from seeds or cuttings, and even those raised by layers, if they are afterwards put into a small pot, could be forced by a hot-bed, when taken away from the stool; as might also the seedlings, and those raised from cuttings, the second year. Mr. Miller recommends even so hardy a plant as the Scotch fir to be raised on a hot-bed; surely then it will be full as advantageous for the mulberry-tree, which is a native of so much warmer a climate. Wherever a plantation is made, two or three trees should be planted against a south-wall, in order that some leaves may come early enough to be ready against the worms are hatched; and according as these trees shoot, the hatching of the eggs must be quickened or retarded.

I hope the society will excuse my offering this advice, unasked: my motive is the desire of promoting their intentions for the encouragement of raising silk, which is in some measure frustrated by the small quantity of trees yet raised for that purpose.

I am,

with great respect,

the Society's

obedient humble servant.

R. W.

*Part of King James's letter to the lord lieutenant of
each County in England.*

James Rex,

“ WE have conceived as well by the dis-
“ course of our own reason, as by infor-
“ mation gathered from others, that the making
“ of silk might as well be effected here, as it is
“ in the kingdom of France, where the same has
“ of late years been put in practice ; for neither is
“ the climate of this isle so far distinct or different
“ in condition from that country, especially from
“ the hither parts thereof, but that it is to be
“ hoped, that those things, which by industry
“ prosper there, may by like industry used here,
“ have like success ; and many private persons,
“ who for their pleasure have bred of those worms,
“ have found no experience to the contrary, but
“ that they may be nourished and maintained
“ here, if provision were made for planting of
“ mulberry-trees, whose leaves are the food of
“ the worms : And therefore we have thought
“ good hereby to let you understand, that al-
“ though in suffering this invention to take place
“ we do shew ourselves somewhat an adversary to
“ our profit, which is the matter of our customs,
“ for silk brought from beyond seas will receive
“ some diminution ; nevertheless, when there is

“ a question of so great and public utility, to
“ come to our kingdom and subjects in general,
“ and whereby (besides multitudes of people of
“ both sexes and all ages) such as in regard of
“ impotency, are unfit for other labour, may be
“ set on work, comforted and relieved, we are
“ content that our private benefit shall give way
“ to the public.

“ And therefore being persuaded, that no well
“ affected subject will refuse to put his helping
“ hand to such a work, as can have no other pri-
“ vate end in us, but the desire of the welfare of
“ our people; we have thought good in this form
“ only to require you, as a person of the greatest
“ authority in that county, and from whom the
“ generality may receive notice of our pleasure,
“ with more conveniency than otherwise, to take
“ occasion, either at the quarter-sessions, or at
“ some other public place of meeting, to per-
“ suade and require such as are of ability, to buy
“ and distribute in your county, the number of
“ ten thousand mulberry-plants, which shall be
“ delivered to them at the rate of three farthings
“ the plant, or at six shillings the hundred, con-
“ taining five score plants.

“ And because the buying of the said plants,
“ at this rate, may at the first seem chargeable to
“ our said subjects, (whom we would be loth to
“ burthen)

“ burthen) we have taken order, that in March
“ or April next, there shall be delivered at the
“ said place a good quantity of mulberry-feeds,
“ there to be sold to such as will buy them; by
“ means whereof, the said plants will be delivered
“ at a smaller price than they can be afforded,
“ being carried from hence: having resolved also
“ in the mean time, that there shall be published
“ in print, a plan instruction and direction, both
“ for the increasng the said mulberry-trees, the
“ breeding of the silk-worms, and all other things
“ needful to be understood for the perfecting of
“ a work every way so commendable and profita-
“ ble, as well to the planter, as to those that shall
“ use the trade.

“ Having now made known unto you the mo-
“ tives, as they stand with the public good,
“ wherein every man is interested, because we
“ know how much the example of our own de-
“ puty-lieutenant and justices will further this
“ cause, if you and your other neighbours will
“ be content to take some good quantities hereof,
“ to distribute upon your own lands; we are
“ content to acknowledge thus much more in
“ this direction of ours: that all things of this
“ nature, tending to plantations, encrease of sci-
“ ence, and works of industry, are things so na-
“ turally pleasing to our own disposition, as we

“ shall take it for an argument of extraordinary
“ affection towards our person, besides the judg-
“ ment we shall make of the good dispositions in
“ all those that shall express, in any kind, their
“ ready minds to further the same, and shall es-
“ teem it that in furthering the same, they seek
“ to further our honour and contentment, having
“ seen in few years past, that our brother the
“ French king hath, since his coming to the crown,
“ both began and brought to perfection, the
“ making of silks in his country, where he hath
“ won to himself honour, and to his subjects a
“ marvellous increase of wealth, would account
“ it no little happiness to us, if the same work,
“ which we began among our people, with no
“ less zeal to their good, than any prince can
“ have to theirs, might in our time produce the
“ fruits which there it hath done.

“ Wherefore we nothing doubt but ours will be
“ found as tractable, and apt to further their own
“ good, now the way is shewn them by us their
“ sovereign, as those of France have been to con-
“ form themselves to the direction of their king.

“ Given under our signet, at our palace of
“ Westminster, the 16th of November, in the
“ sixth year of our reign of England, France and
“ Ireland, and of Scotland the two and fortieth.”

The science of botany and gardening is considerably indebted, for its improvement, to the discovery of the sexual system in plants. To the cultivators of strawberries it has been particularly beneficial: they, now, no longer complain of that barrenness which was accustomed to invade, for several successive years, whole beds of these plants, but with a knowledge of the cause perceive the possibility of removing it.

In the Linnæan system, the strawberry or *fragaria* belongs to the *icosandria polygynia*, his twelfth class and fifth order, which includes those plants which have hermaphrodite flowers, that is, both male and female flowers on the same plant, and amongst the various species or varieties at present cultivated, there are some also which produce male flowers on one plant, and female on the other, as the hautbois strawberry *fragaria moschata*, and the chili strawberry, *fragaria chiloensis*; but of this we at present possess only the female plant, of which Mr. Frezier, engineer to the French king, brought five plants to Marseilles about the year 1712, and has, since that period, spread them over all Europe; therefore if the chili strawberries are planted by themselves, it is impossible to have fruit from them; but to remedy this defect and to make them as fruitful as other strawberries, on a bed which would contain three rows, plant the
two

two outward ones of chilis, and the middle one male hautbois; every twenty-four chilis will want eleven hautbois.

When you make a plantation of hautbois, the same method must also be followed of planting the middle row male-ones, but this regulation of the plantation can only be made when the strawberries are in flower; for there is no different appearance in the hautbois in leaf or stalk of the males and females; therefore, when they are in flower, they must be examined, and marks being set to them, transplanted in the following September. Not to be disappointed of a full crop of fruit, the first season, I would prefer the transplanting them as soon as ever the flowers can be distinguished: and though some few plants will require to be thus removed, it should not hinder the plantation from being made in the usual way in September; this transplanting can be performed with a semi-circular spade, without prejudice to the plants, only the trouble of watering them well afterwards, and placing an empty pot over them for a few days is necessary: some persons indeed plant the middle row with either the alpine or carolinian strawberries, and then fruit is produced from all the plants; but the scarlet fort will not impregnate them, because they flower sooner than the chilis.

In

In regard to the wood strawberry, some care also is requisite to examine that you have none of the blind strawberry planted, *sylvestris abortiva*; from such you will never have any fruit, though the flowers are hermaphrodite: if you are not a judge of botany sufficient to know which are male and which female flowers, it will be proper to apply to some person who is, and when you are once shewn it, you will readily hereafter know how to render your strawberry plantation fertile.

There is also a method not only to prevent strawberries from degenerating, but even greatly to improve them, and also to raise some more new and valuable varieties, and this is by sowing the seed. Mr. Duchesne, who has written a curious treatise in French, entitled the Natural History of the Strawberry, imagines all the present varieties to have been produced originally from the alpine, *sylvestris alpina*; but whether he be right in that supposition or not, it is very plain that above sixty-five varieties are now known, yet there are not above six species at most from which these have been produced; perhaps not so many.

1. Chil-

44 IMPROVEMENTS ON STRAWBERRIES.

1.	Chiloensis, the Chili Strawberry, -	12	varieties;
2.	Chinensis, the Chinese, - - -	1	
3.	Moschata, the Hautbois, - - -	14	
4.	Sylvestris, the Wood, - - -	26	
5.	Virginiana, the Virginian, - -	5	
6.	Viridis, the Green, - - -	7	
		65	

By referring to the Universal Botanist, vol. 3, p. 325. all these varieties may be distinctly seen, and the very curious and particular manner by which they have been raised.

CHAPTER III.

The Dutch method of training and pruning fruit-trees, and of making an orchard with espaliers, in order to preserve the ground between the rows in a state fit for cultivation ; with the value of elder trees.

THE reputation which the Dutch have acquired by their knowledge of gardening and their peculiar methods of training and pruning all sorts of fruit-trees will apologize for my attempts to describe their practice, and the rather as I do not recollect any English author, who has hitherto done it. Any one may judge, after he has trained a few trees in their manner if it deserves the preference to ours.

The ground in Holland, being very boggy and loose, the Dutch generally inclose their gardens with wooden pales instead of brick-walls : these pales are about six or eight feet high, and painted of a brownish red : a strip of wood, an inch an half square, is nailed near the top, with another at bottom, and then others, one inch square, are
nailed

nailed upon these, six inches asunder, and painted white, which makes them look very ornamental. To these the branches are fastened, and the distance between the fruits and the pales causes the fruit to ripen more equally all over, by the reflection of the sun : which is an excellent precaution in so cold and damp a climate as Holland, and worthy of imitation in similar situations in England.

From the lowness of their pales, they train their trees accordingly. The first two branches are fastened quite horizontally, one to the right, another to the left ; the upright shoots which these make are left for the bearing-branches, (the under buds being all pulled off) and suffered to grow two or three feet high : but they have not the ingenuity to raise a perpendicular branch in the middle, to afford more horizontals to cover the top of the pales ; and for this reason it is that they plant a half standard betwixt every dwarf, even against pales not five feet high. This method is worth imitating for parapet walls of three or four feet high ; they use it particularly for peaches, nectarines, plums and apricots ; as to apples and pears, which are generally planted against the ends of their houses, they let the perpendicular fruit-branches of these run up against the strips of wood, to the height of ten, fifteen, or twenty feet,

feet, and these look very ornamental : yet they bear but little at the bottom, as the wood becomes old. Hitt's method of raising many horizontals from a perpendicular, is a great improvement to their method.

Sometimes one vine is seen to cover fifty or sixty feet of paling with its two horizontal branches, and where they do not happen to throw out sufficient perpendicular fruit-branches, one of the fruit-branches, is brought down and tied to the old horizontal ones, to train fruit-branches from it ; though vines are so easily raised, they seem to prefer one old large tree to several young ones, against the same quantity of paling. Perhaps in that wet soil, the old trees, not being so vigorous, produce better fruit than the young ones.

In their forcing-frames they act quite differently from our method, in regard to vines. Their frames are about four or five feet deep from the wall, and instead of the branches being fastened to the wall, they are fastened to strips of wood, so close to the glasses, that the leaves touch the glass, and a walk is left betwixt the trees and the wall.

Being only one season in the country, I had not time to see if their grapes ripened sooner than ours ; the inside of the frames appeared damp and cold, by the shade caused by the leaves and branches,

nor were any of the walls whitened to reflect any heat, which ought always to be done in stoves, greenhouses, forcing-frames, and even hot-bed frames. Another method also was, to have common hot-bed frames of wood covered with glass, and the vines drawn in under them; but half the tree was always left out, and supported by stakes, for forcing the next year; nor did they know the practice of having strawberries in pots: therefore they could not force half the quantity in the same compass as we do.

In their parterres, they generally introduce apple-trees. When the tree is planted they put three or four sticks down into the ground, and nail a hoop on them: the branches are trained horizontally on this hoop, which is about two feet from the ground; as the tree shoots, more hoops are placed in the same manner; so that it exactly resembles a coach-wheel. The ground is kept constantly clean hoed, and raked underneath, and about an inch thick of tan is spread over it.

In our English orchards, the very great error of thinking that the standard fruit-trees never require any pruning, is but too frequently committed; if the taking off of superfluous branches, and those which cross each other, be necessary against walls and espaliers, towards improving the size and flavour of the fruit, it certainly will have the same effect

effect if practised on standards, though these do not require it either so often or so much. However, when they do, the expence will not be great; indeed the wood cut out will frequently more than repay it.

There have lately appeared in the Chronicle two letters, giving hints for planting of orchards with trees trained as espaliers. The advantages of this method are so many, that I could wish to see it put in practice. The ground, being then so little shaded, can be cultivated to more advantage, than when the trees are spread in their natural way; for, in this last case, the crops underneath are worth very little. By the constant cultivation of the ground, the trees will thrive much better; the fruit will be more easily gathered without being bruised, nor will any of the branches be broken as in the usual way. This will likewise permit the using of such a ladder as is made for clipping of trees; if it be fixed on two planks, with small wheels, it is easily moved along by one person, and by the means of this ladder the trees may be pruned very commodiously.

The writer of those letters has experienced, that the same method may be practised on old trees already planted in the usual way. He has found it answer greatly, and deems it particularly necessary in those orchards, where the trees stand so

E

thick

thick as to touch each other. But as he has not yet spoken of the manner of training young trees in that way, I will give some directions on that head, and would advise those who have orchards, the trees of which are very old, first to try only about a third part, to see the success of it, before they cut all their trees; if they would do them justice, they should at the same time dig up the ground, or plough it, if the trees are planted in rows; and keep it cultivated for two or three years before it be laid down in grass, as most orchards improperly are.

On making a fresh plantation, plant the trees due north and south; by that method more sun will come to the ground, and only the two outward rows can be much affected by the westerly winds, which frequently do great damage to standard fruit-trees. The late ripe apples and pears, for winter use, should not be planted in the two outward rows. If there be plenty of ground, the orchard ought to be defended by some rows of tall timber-trees on the west, north and east sides; the most eligible situation is, on the slope of a gentle hill open to the south.

In the training of trees for this purpose, when they are planted, the head should be reduced to three branches; one to grow upright, and the other two to be trained asslantways, one on each side.

side. At first it will certainly be necessary to have a stick or two on each side the tree, to direct these branches, and hinder them from growing too upright; or else a stick must be put across the three branches and fastened with a small hay-band, to prevent its bruising the bark.

Some also might be trained with only two branches, without the middle one; or it may perhaps be found necessary, in some trees, to take away the middle branch in some few years, to make room for the side shoots of the two outside branches: the tree with three branches will certainly make the most beautiful and regular appearance.

If it be intended to put cattle into the orchard, the trees must be planted, like other common standards, that the branches may be out of their reach; otherwise, the lower the stems are, the more readily the fruit can be gathered, nor is it so liable to be blown down by the wind.

Where any old trees want new grafting, let there, by all means, be three grafts put in; one perpendicular, the two others asslant; by these means the new heads will be much more easily formed. In training of old trees, let them be reduced, if possible, to three principal branches; if they be very old, and the branches very irre-

gular, it is better to cut the whole head off, and new graft them.

When a wall is so high as to require half-standard trees between the dwarfs, in order to cover its upper part, some gardeners have rightly thought it best, not to plant the half-standards nearer to the wall than two feet, that the roots may have the more room to spread in.

As elder-flowers and berries sell well at the London markets, the berries, at two shillings, and sometimes more, the bushel, it may not be improper to plant some trees for that purpose; they are easily raised from cuttings, and almost any ground suits them.

The flowers are used to distil a simple water from them, and also to imitate frontiniac wine. The berries serve to colour porter, and the artificial port-wine, also to make elder wine, and the syrup for some physical uses.

The common method of making the wine, is to make it with sugar or raisins, and put in a small quantity of the syrup; but the most genuine elder-wine is, to use the juice of the berry only, in the same manner as wines are made abroad.

CHAPTER IV.

The present method of the London kitchen-gardeners cropping their ground described, for a crop of collyflowers under glasses, and five more crops on the same ground, viz. collyflowers, spinach, lettuces, cucumbers, endive, and autumn collyflowers.

EVERY lover of agriculture and gardening, who has once observed the manner in which the grounds around London are cultivated and cropped, cannot but wish to see similar methods more practised in the interior parts of the kingdom. They are attended with many advantages to the cultivator, and they make the same ground produce double or treble the usual quantity of vegetables. Where land is scarce, as in the neighbourhood of all large towns, they are of great national utility, especially as, from this practice, the country farmer must by degrees begin to see the great difference in the value of grounds, which have drilled crops, and are hand or horse-hoed: his

land is more benefited by a drilled crop than by a fallow, and yet he receives profit in that very year.

Of all the crops, raised by the kitchen-gardeners, none yield so much profit as those of collyflowers raised under glasses; indeed, the large expences attending them require some extraordinary profit; nor are there many gardeners who, at least, at their first setting out, can afford to sink so much money as the glasses cost. Perhaps few people unacquainted with their culture, profit, and expences, can form to themselves any but very faint ideas of them. These are my reasons for making them public, especially as they have not yet been so particularly described by any writer.

The glasses are placed in rows, at the distance of four feet from the centre of each glass; the rows are ten feet asunder, to leave room for the cucumbers. A square acre of ground, ranged in this manner, will contain twenty-one rows, with about fifty-two glasses in each row, which make one thousand and ninety-two glasses requisite for an acre; let us call them eleven hundred.

The collyflower seeds are sown on some old hot-beds in August, and pricked out from the seed-bed to prevent their being drawn up weak, and to be ready to have six planted under each glass in October or November. After they have been
planted,

planted, the whole ground is sown with lettuces and spinach. If the lettuces stand the winter, they will come so much forwarder in spring; if they be killed by the frosts, as is sometimes the case, the ground must be sown again in February. About March some of the collyflower-plants must be taken away, to be set in other ground, and only the two strongest be left under each glass.

Early in spring, some cucumbers should be sown in hot-beds, to be ready to plant out under the glasses, when the collyflowers grow too large to be contained under them; and if they are sown in small pots, it is more convenient for the transplanting them, and they will come much forwarder.

In May, some endive must be sown to plant two rows, about sixteen inches asunder each way, betwixt the cucumbers; and likewise some more collyflower seed for planting out in July, two plants betwixt each glass among the cucumbers, to be ripe about Michaelmas. Here follows an estimate of the expence of raising these crops, which being all valuable ones, a sufficient allowance is made for their being properly managed.

	<i>l.</i>	<i>s.</i>	<i>d.</i>
For seed, and raising of 2200 colly- flower plants fit to plant out - -	1	10	0
Digging 160 rods, at 3d. per rod. - -	2	0	0
Planting them, hoeing, and earthing them up before winter, - - -	1	0	0
Seed, and sowing the ground with spi- nach and lettuce-feed, - - - -	1	10	0
Ten loads of dung for a hot-bed for rais- ing 3300 good cucumber-plants, at 5s. per load, - - - -	2	10	0
Digging a row four feet wide between the glasses, two fifths of an acre, -	0	16	0
Seed and labour in raising and transplant- ing them under the glasses - - -	2	0	0
Earthing up the cucumbers after the col- lyflowers shall have been gathered, -	1	0	0
Seed, and raising 7000 good plants of endive, - - - -	0	14	0
Digging a row of ground, two feet and a half wide, between the cucumbers	0	10	0
Planting the endive, - - - -	0	7	0
	£ 13 17 0		

Brought

	<i>l.</i>	<i>s.</i>	<i>d.</i>
Brought over	13	17	0
Seed, and raising 2200 good collyflower- plants fit to plant out,	1	10	0
Planting them, pulling up the cucum- bers in September, earthing them and tying up the endive,	2	0	0
Rent 5 <i>l.</i> Dung, and repairing the glasses, 7 <i>l.</i> 13 <i>s.</i>	12	13	0
	£ 30	0	0

N. B. No ground wants digging for the autumnal collyflowers, as they are planted in July, when the cucumbers have been earthed up.

In ground, cultivated in this manner, much depends on frequent hoeings ; as the advantage lies in having so many successive crops, the whole care depends on forwarding each as much as possible. Nothing contributes so much to this as the frequent stirring of the surface, never suffering the weeds to grow above an inch high. Another very material point is, to take particular care to have a good early sort of collyflower and lettuce-feed, either of your own saving, or from such a person as you can depend on.

The

The produce.

			l.	s.	d.
160	rods of spinach, 1s. each,	- -	8	0	0
9680	coss lettuces, - 1d. - - -	- -	40	6	8
2200	collyflowers, - 3d. - - -	- -	27	10	0
1100	glasses of cucumbers, 6d. - -	- -	27	10	0
7000	plants of endive, at 1 <i>fartbing</i> ,		7	15	10
2200	collyflowers, - 1d. - - -	- -	9	3	4
			£120	5	10

So amazingly large is the amount arising from the value of a single acre, that it will be necessary here to make some remarks on that set upon the crops. At the gathering of the spinach, every body must recollect the great scarcity of greens; therefore one shilling per rod is scarcely too much; no expence is here reckoned for carrying to market, as the distance cannot be fixed, but suppose this to be the neat profit. As many of the lettuces are preserved under the glasses, and consequently are very forward, one penny each cannot be deemed too much, on the suggestion that only two can be produced from each yard of ground.

These

These early collyflowers are frequently sold for two and three shillings each, but the price remains for a long time at about six-pence: certainly three-pence for each cannot be too much; sometimes they will produce six-pence, one with another. Besides, there are raised under the glasses 4400 more, which come in for the second crop, and are thereby greatly forwarded; it sometimes happening that the collyflowers under the glasses are killed by severe frosts, nothing is reckoned for these plants, in order to balance against that accident; for then a hot-bed must be made early in the spring on which to raise more plants. There are three plants of cucumbers under each glass, which is valued so low as at two-pence each plant; if they be raised in pots, as before proposed, they will come in the earlier and be worth much more. The endive and second crop of collyflowers are reckoned at so moderate a price, that no objection can be made to the value set on them.

From the constant use that the Dutch make of tan, to keep the frost out of the ground, and considering that their winters are much severer than ours, it certainly would not be amiss to have some of it spread about an inch thick under each glass, and about three inches round it, after the last hoeing, before Christmas; nor are ashes amiss where tan cannot be procured; if, once a week, in spring,

spring, the collyflowers were watered with the draining of a dung-hill, diluted with water, so as not to be stronger than if an ounce of salt were mixed with a gallon of water, it would undoubtedly forward them.

But, there are raised under the glass 400 more, which come in for the second crop, and are thereby greatly forwarded; it sometimes happens that the collyflowers under the glass are killed by severe frosts, nothing is reckoned for these plants, in order to balance against that accident, for then a hot bed must be made early in the spring on which to raise more plants. There are three plants of cucumbers under each glass, which is valued so low as at two-pence each plant; if they are raised in pots, as before-mentioned, they will come in the earlier and be worth much more. The produce and second crop of collyflowers are reckoned to moderate a price, that no objection can be made to the value of them. It is also of importance to observe that the plants are raised out of the ground, and are not raised in pots, as before-mentioned, for they are certainly worth more than those raised in pots, as before-mentioned, for they are raised about an inch thick under each glass, and about three inches round it, after the first crop before Christmas, and are raised in pots, where they are produced; it is raised in the spring.

CHAPTER V.

Another method of cropping ground, to make it produce four or five crops in a year; the profit of cabbages, asparagus, and many other crops.

THE principal advantages, enjoyed by the kitchen gardener, and which ought to be sought after by the farmer, arise from his judgment in cultivating several successive crops on the same ground within the year, for which he has but one rent to pay; and though the drilled crops are in general superior, yet there are some also in the broad-cast too, that are attended with considerable profit. The chief skill here consists in growing such crops as are not long in coming to maturity, and in making these succeed one another without intermission. Upon this principle, I saw the following method practised by a very judicious gentleman-farmer, to the no small astonishment of his neighbours.

This ground had been planted with currant-trees two years, in rows eight feet asunder, and four feet from tree to tree, which are thirty-two feet

feet to each. An acre, planted in this manner, will contain thirteen hundred and sixty-one trees.

Early in spring, it was digged and sown with spinach; as soon as that was gathered, it was planted with potatoes, which were taken up in July; then coleworts were immediately set in it; and as these do not occupy the ground above there or four months, there remained time enough to plant another crop of them before winter. Thus, in the course of twelve months, there were four complete crops, which, besides the currant-trees, entirely covered the ground.

The expence of putting four such crops into the ground, would amount to about twenty pounds, including a rent of twenty shillings per acre.

The produce.

	l.	s.	d.
160 rods of spinach, at 1s. per rod.	8	0	0
- - - - - potatoes, 3s.	24	0	0
- - - - - coleworts, 1s. 6d.	12	0	0
- - - - - Ditto the second crop, 1s. 6d.	12	0	0
1361 currant-trees, 2d.	11	6	10
	£ 67	6	10
			Were

Were the coleworts fold at only a penny each dozen, as there would be 3630 dozen on an acre, when planted a foot asunder, they would amount to 15l. 2s. 6d. each crop.

As the currant-trees come to perfection, they will produce at least, six-pence a piece clear profit, and in many years twice as much; in July or August, after gathering the fruit, plant two rows of favoys, at the distance of two feet; the profit then will be,

	l.	s.	d.
1361 currant-trees, at 6d. each, - -	34	0	6
5460 favoys, 1d. - - -	22	15	0
	£ 56	15	6

There are also many other sorts of kitchen-plants, which admit of raising several crops, within the year, upon the same ground, as radishes, lettuces, and onions, sown all together. The onions, being gathered early, and carried to another place to dry, the ground may be immediately planted with celery, in trenches four feet asunder, and about eight inches from plant to plant; on the ridges may be set endive, at the distance of eighteen inches. An acre, thus planted, will contain about fifteen thousand plants of celery, and six thousand six hundred and sixty of endive: but
were

were the radishes and lettuces to be sown together in one row, and the onions in another separate, it would be much better ; because, when the onions are left alone, the other drill could be more conveniently stirred, to give nourishment to the onions.

The expence of cultivating such a crop, will be from ten to twelve pounds, exclusive of rent and dung, which may be reckoned at ten pounds more ; though eight inches include a larger distance than most gardeners allow for celery, yet the far superior excellence of a large head, will more than compensate for the want of a few in number.

Other successive crops are, radishes, carrots, and then favoys, or coleworts.

Winter cabbages become ripe about June and July, and are followed by turneps or coleworts.

Next in season are, spring-turneps, then French-beans or favoys, for a second crop.

After these, come peas and beans, then brocoli, or favoys.

And lastly lettuces, with beet-roots in rows, and then favoys.

Asparagus, for the two first years, pays very little more than the rent and expences, as onions are sown with it, and lettuces planted on the beds to stand the winter ; sometimes a row of beans is sown in the trench ; from this period asparagus will

will pay after the rate of five, six, or seven shillings per rod. Spare therefore no pains to make it come forward, because it will then pay well; after it has been once brought to market, its price decreases daily. Watering it with the draining of the dung-hill, or applying to it some strong top-dressing, such as pigeons dung, blood, foot, &c. will forward it some days; it will be produced earlier if the beds be made in a warm situation and sloping towards the south.

Fail not always to sow onion and coss lettuce seeds together, because the lettuces frequently stand when the onions have been destroyed; the lettuce-seed is of so small value, that the loss is but very trifling should it miscarry. At all events you have the chance of two crops. An acre of onions frequently produces forty pounds, which are at the rate of only five shillings per rod.

Of all the crops raised by the gardeners, there are few which, in general, pay better, at least with more certainty, than cabbages, because they are liable to but few accidents in the raising. A forward sort of sugar-loaf cabbages pays the best, owing to the great price they bear in spring, which is frequently at three-pence and four-pence each for some time. The distance they are usually planted at by gardeners is two feet and a half square, according to which an acre will contain six

F

thousand

thousand nine hundred and seventy plants; but then there is not room to go amongst them to hoe them, after they begin to grow, and they are very troublesome when they are fit to be gathered; there will be two months difference in the gathering from the first to the last; in this instance the drill-method of planting only two rows together, with a large interval, shews a manifold advantage.

This expedient is taken from a plan recommended by Mr. Randal, in his excellent treatise, entitled the *Semi-Virgilian Husbandry*, which highly merits the attention of the gentleman-farmer and the scholar. Agriculture is here investigated in a very masterly manner, and every proof is at once supported by philosophical and mathematical reasoning.

The cabbages are to be planted in two rows together, at the distance of two feet each, and then an interval left of four feet and a quarter, before two rows more are planted. In this method, the fibres of each cabbage have the same quantity of ground to range in, viz. nine hundred square inches, with only this difference, of one being an exact, and the other an oblong square; yet with this great advantage, that the interval can be hoed and kept clean, and the cabbages greatly forwarded, by giving them fresh nourishment from time to time; even in three months, before they
be

be taken off the ground, another crop can be planted in the interval, which cannot be the case where they are planted to cover the whole ground. Every crop therefore that is planted in this way, of two rows of plants, and a large interval, will greatly have the preference to that, where they are planted in the usual manner. Indeed this method ought to be used with every crop which can admit of being planted in rows; for by it almost one whole crop more is gained in the year, from the same ground.

An acre of cabbages, planted in this manner, if sold only at one penny each, will raise 3 l. os. 10 d. besides other crops produced from the same land within the year, as turneps in the intervals between the cabbages, and then coleworts where the cabbages were; though coleworts cannot be ranked among the valuable crops, yet, in the end, they pay very well, considering the little time during which they occupy the ground, being in general no more than three months; if they be valued at but one penny a dozen, an acre will produce 15 l. 2 s. 6 d. for they need not be planted at more than one foot asunder, and as there are 43560 square feet in an acre of ground, it will produce 3630 dozen of plants; there is also this great advantage in coleworts, viz. that, during all the winter season, they may be planted in any vacant ground, where, in so short a

time as three or four months, they will come to perfection. A plentiful collection of these plants should be made, as an overplus of some few thousands, although they were never to be planted, would occasion no great loss to the owners.

The profit of spring turneps, for the London markets, answers also very well, as upon an average, at a moderate calculation, they will yield about eighteen-pence a rod profit; for very large turneps are not reckoned the best for eating. Two turneps may be allowed to grow on each foot of land, which will produce for an acre, 4356 bunches, containing twenty turneps to each bunch, and if sold for one penny each bunch, they amount to 18l. 3s. if they only raise half of that sum, being a crop which occupies the land but three or four months, and will grow on any light sandy soil, without much dung, they answer very well for sowing; the ill-shaped roots, and the tops, afford plenty of food for cattle. If they were to be sold at the market by measure or weight, without the tops, this would save the cultivators a great expence in tying up, and in carriage, the tops might be left at home, fresh for the cattle.

Beans likewise are another certain crop, by their not being liable to suffer from accidents. A great objection lies also against their being planted in rows at equal distances. I have seen them greatly damaged,

damaged, for want of sufficient room between the rows to gather them ; as they afford a crop which bears gathering three or four times over, there is a great advantage in having two rows planted at the distance of eighteen inches, or two feet, with an interval of about four feet. However, let the distance be what it will at which they may be planted, according to the different sorts, two rows should always be planted so much nearer as to make a large interval, and there will then be the same number of rows ; to this, add the gain of about two months advance in the next crop, by having an opportunity of cropping the interval before the beans shall have been all gathered : In general, they produce about twenty pounds profit from each acre, and sometimes more.

Peas, in general, do not pay so well as beans, nor will they sell so well when old ; but they suit light sandy ground, where the others would not thrive ; if it can be contrived to bring them to market very early, or else at the latter end of the season, they will yield much larger profit, and the cropping of the land will not cost any thing more.

From the calculations I have given of the different crops, a cultivator of any of them, may easily know how to estimate many others, and judge

which is the most profitable method of cropping his land ; but he must pay a particular regard to the time during which each crop occupies the ground. In these successive crops, the chief profit depends on their quick succession, and in this the cultivator cannot be any way so much benefited, as by raising those which admit of being sown or planted in rows, with large intervals.

CHAPTER VI.

A plantation of aromatic herbs, roses and flowers described; the profits attending them.

IN the neighbourhood of London, it is incredible what profit arises from aromatic herbs, roses, flowers, and their roots, especially as the essences and tinctures of so many sorts are now made and sold by the chemists and druggists; the flowers are used for nosegays, and the bulbous roots for sale. The principle advantage consists in having many sorts of the aromatics planted on such soils as are not worth ten shillings an acre. I have seen winter savory, camomile, penny-royal, peppermint, &c. growing even in the common field of a parish within six miles of London, where all sorts of cattle were to be turned in at Lammas; the scent of these herbs is very disagreeable to those animals, and therefore, as they avoid them, they of course, do not impede their vegetation.

The kitchen-gardener, therefore, or the gentleman-farmer, who may happen to have light dry

F 4

gravelly

gravelly soils, cannot put some of them to better uses than by cultivating such crops; the raising of them costs very little, nor do they want any dung, a small quantity of ashes being all the manure they require.

The principal sorts of the aromatic and physical herbs are,

Balm,	Poppies,	Spearmint,
Basil,	Rosemary,	Thyme,
Camomile,	Roman worm-	Or any other sorts
Lavender,	wood,	that our modern
Marjoram,	Rue,	quacks in Physic,
Pennyroyal,	Sage,	introduce into fa-
Peppermint,	Savory,	shion.

The aromatic herbs are generally planted on beds five or six feet wide, with a path of eighteen inches, affording room to pass between them, to weed and gather them. They require being hoed two or three times in a season, in Spring, to forward them, the path must be pared up, and some few ashes must be spread over the bed; after the first trouble of planting, this is all the cultivation they require, at the end of four, five, or six years, according to the different and best approved sorts, which your own discretion will point out; they must be dugged up and fresh planted.

Many

Many of these sorts bear cutting two or three times in a year, allowing one shilling per rod, which is but a small value; an acre fetches eight pounds each time.

Roses are for three uses: the monthly for nosegays in Spring and Autumn; the deep red for conserves, and the damask for water; for nosegays, plant also some of the finer sorts, such as the provence, the maiden's-blush, the yellow, the double sweet-briar, the burgundy, and the moss-provence: these require a better soil than the aromatic herbs, and the roses should be planted on a warm situation, being of ten times more value, when they come in early.

The flowers for nosegays are the quite common sorts, which require very little culture; they should in general be such as are sweet-scented; if some of the broad-leaved myrtles be planted against a south wall, and covered with mats in winter, they will pay very well for nosegays.

The flowers generally used for this purpose are,

Anemones,	Narcissuses,	Sweet-basil,
Carnations,	Pinks,	Sweet-scented-
Honey-Suckles,	Polyanthuses,	peas,
Hyacinths,	Ranunculuses,	Tulips,
Jasmins,	Roses,	Wall-flowers,
Indian-pinks,	Stock July-	and some
Jonquils,	flowers,	others.

The

The seeds of many of the annuals will pay very well for preserving, as there is a constant demand for them by the seedsmen, and very few people think it worth their while to collect them: such are

Adonis,	Indian Pinks,
African Marygolds,	Ketmias,
Amaranthus,	Larkspurs,
Annual Stocks,	Lavateras,
Balsams,	Lychnis,
Blue Bottles,	Lobel's Catchfly,
Belvideres,	Lupines,
Candy Tufts,	Marygolds,
Caterpillars,	Mignonette,
Capficums,	Nasturtiums,
Chinese Asters,	Nigella,
Chrysanthemums,	Perficaria,
Columbines,	Pinks,
Convolvuluses,	Poppies,
Coxcombs,	Roman Nettle,
Cyanus,	Rose Campions,
Dwarf annual Stocks,	Scabiuses,
Egg Plants,	Scarlet Beans,
French Marygolds,	Securidicas,
Globe Thistle Hawk- weed,	Sensitive Plant,
Humble Plant,	Snails,
Jaceas,	Stramoniums,
	Stock Gilliflower,
	Sun-

Sun-flowers,	Tricolors,
Sweet Peas in their separate colours,	Venus's Looking-glass,
Sweet Basil,	Venus's Navelwort,
Sweet Sultan,	Veronica,
Sweet Williams,	Wall-Flowers,
Tangier Peas	Zinna, and many others.

Planting of bulbous and tuberosc-rooted flowers is a profitable object; there is always at London a demand for much larger quantities than are offered for sale, so many of the bulbous roots being destroyed by blowing them in water; nor need these be any other than the common sorts of

Crocuses,	Tulips,	Ranunculuses,
Snowdrops,	Hyacinths,	Anemones,
Persian Irises,	Polyanthuses,	Irises,
Jonquils,	Narcissuses,	Crown Imperials,
Narcissuses,	Lilies,	

Garlic, eschalots, and rocambole, may be reckoned amongst such profitable bulbous-roots as deserve raising.

If these be not crops of consequence enough to require much attendance, yet, from the variety of the articles, small expence of cultivation, and the little room they need, much profit is to be gotten. Although little regarded by a great kitchen-gardener, yet they are not improper to be cul-

cultivated by his children ; by giving them as perquisites to these younger artists they may thus, probably, be incited to the study and love of gardening. Hence, at least, arises the propriety of having some ground, adjoining to the house, laid out in an ornamental manner, for the cultivation of these plants.

CHAPTER VII.

An estimate of the yearly expence of a stove forty feet long; improvements in the management of pines, strawberries, &c. a convenient oven, and an expeditious method of watering the plants.

AS no garden is now thought to be complete, without a stove for raising of pine-apples, and as the building and looking after it, has been magnified in the imagination of most people, beyond what it really is; I shall set down minutely every charge attending one of my own, for upwards of two years, in hopes that this true account may induce some gentlemen, and particularly such as are at a great distance in the country, to lay aside the prejudices, through which they have been deprived of the pleasure of having a stove. With this view it was, that I inserted the following estimate in the Museum Rusticum, about the year 1764; but as many may not have that work by them, to refer to, or perhaps have not seen it, I flatter myself that I stand excused for re-publishing a proof, which my own experience has afforded,

that

that the expence of a stove comes within the reach of almost every person settled in the country, and that, if it be intended for profit, there is scarce any branch of gardening more lucrative. Besides it requires but very little room, and the amusement of seeing the amazing quickness of vegetation by the help of artificial heat, is pleasing beyond description.

The building a stove forty feet long, and twelve feet wide, according to the annexed plan, with upright glasses in front, will cost about eighty pounds near London, if the materials be new; but if it be built against an old wall, it will cost about fifteen pounds less. Some persons have the fire-place and shed for fuel behind the stove, and that is rather the most convenient way: however, it is not material, and therefore may be regulated according to the situation of the place; if it be at one end, let that end be the west, in order that the rising sun may shine through the east end, which should therefore be glazed: this is of great consequence for reviving the plants early in the morning. The most desirable situation for the whole building, is a southern aspect, turned a little towards the east.

The expence of the plants will be proportioned to the time a person chooses to wait, before he has fruit; there are pine plants of all prices, from one
shilling

Shilling to ten, twelve, or fifteen, each, as they may be purchased with the fruit nearly ripe. About thirty pounds will stock a pinery very well at first, for a gentleman's own use, and he may have daily opportunities of buying more whenever he pleases, if he has room for them; room is an essential circumstance, because great care should be taken, never to crowd the plants too much; if they be drawn up weak, before they shew their fruit, their leaves will grow quite upright for want of room to spread, and the air being prevented from coming to the stem, the fruit will never be large. This will be a great detriment, particularly if they be intended for sale, because no fruiterer will give half so much for those under a pound weight, as for those above it; all fruit from twenty ounces in weight and upwards, will sell for about eight shillings each pound; for what can be ripened as to come in, at the end of May, to be ready against the 4th of June, the king's birth-day, almost any price may be procured; such is the demand for forced fruit, on account of the many entertainments, which the ambassadors and nobility give on that occasion.

It is quite necessary to have a pit to keep the plants intended for succession in, and then a stove, of forty feet long, will easily produce fruit from 150 to 200 pines; were there only 150, each pine weighing

weighing one pound and three quarters, which contains but a moderate size, under good management, one hundred and five pounds might be raised, exclusive of the profits arising from a vine to each rafter, 400 pots of strawberries, and 80 pots of cucumbers, french-beans, &c.

The yearly expence of a stove forty feet long will be as follows;

	<i>l.</i>	<i>s.</i>	<i>d.</i>
800 bushels of tan to fill the pit, at			
1d $\frac{1}{2}$ a bushel, - - -	5	0	0
16 loads carriage, at 12d. - -	0	16	0
3 chaldron and half of coals, at 36s. -	6	6	0
200 bushels of tan more, to keep the bed level with its first height, - -	1	5	0
Filling the pit with tan, and planting the pots, two men two days each, at 2s. per day, - - -	0	8	0
Stirring the tan up, and putting fresh in, four times more, at 8s. each, -	1	12	0
For attending the stove 52 weeks, at 18d. per week, - - -	3	18	0
Repairing the windows, painting, and white - washing the stove yearly, about - - -	1	15	0
	£	21	0 0
	As		

As every thing is here reckoned at the prices near London, it is propable that there is not any part of the country, where they will cost more ; the cinders from the house and rubbish from the garden, will abate the quantity of coals, especially if recourse be had to some balls made with cow-dung, and a little coal, mixed together and dried. After the first year, not above half the above-mentioned quantity of tan will be wanted, and where a larger stove may be requisite, were two of forty feet each built with a vacancy, of twenty feet between them. Another house of twenty feet long, might be had with only the expence of glass in front, and the roof, for no additional flue will be wanted here, as the middle part will be sufficiently warmed by the end flues of each stove. This middle part is likewise very proper for some of the plants, which are to fruit the next year.

When the building of my stove was almost finished, it was imagined that an oven might be contrived over the fire-place, which would be of use for several purposes. As the fire-place projected about twenty inches, from the outside wall of the stove, into the shed, at the entrance by three steps over the fire ; by the easy expedient of making two steps more, was formed an oven over it, about sixteen inches deep, eighteen wide, and twelve high. The bottom was covered with a cast-iron plate, which served for baking, or boil-

ing a pan of water, containing about five gallons and by laying a leaden-pipe of an inch-bore through the oven-wall into the stove, with a cock at the end of it, a large stream of warm dry air, or of moist air, could be thrown in, when water was put into the pan; with another pipe which came through the oven into the open air, the fresh air moderately warmed.

The utility of such an oven, which cost nothing to heat it, and which serves for baking, boiling meat for pigs, and giving fresh air to the stove, certainly speaks for itself.

As it frequently happens in frosty weather, that, on the sun's going down, the stove suddenly declines in heat and requires not only a bushel of coals extraordinary, but an hour or two's attendance on the fire to recover it; the gardener was ordered, in that case, to fork up the tan in the bed, betwixt the walk and the first row of pines. This can be done in five minutes, without moving the plants, and the hot stream instantly raises the thermometer to its proper height, and afterwards condensing, serves instead of the natural dew to refresh the plants.

Sometimes half a dozen of large candles were lighted when the stove became late at night, too cold; if light, and the painting of the walls white, be so essential in causing exotic plants to thrive in
the

the winter, (as various experiments prove it in green-houses,) it is certainly as necessary in stoves; where an additional ten or twelve pounds expence is not regarded in the building one, by all means let the back-wall, and that end which is not glazed, be covered with white tiles; otherwise, let the wall be well plaistered, or stuccoed, and painted white with a good gloss, which, when the sun shines, will, by the reflection, greatly warm the house; and if the light in the night be thought to be of any use, a globular glass lamp, with a tin funnel to carry off the smoak, should be hung from the roof, and would cost but about two-pence a night for oil. This hint I submit to the considerations of others, as well as the manner in which the greatest quantity of light, could be thrown on the plants. I have experienced, that by only covering part of the roof during some few days, such pots of strawberries or french-beans as were shaded, soon lost their natural colour.

It has been remarked by all gardeners, that new houses always produce the best fruit. Every August, therefore, when the house is thinnest of plants, let it be painted white; the tan stirred up afresh, white-wash the sides of the pit with lime and water, with a brush, which is making it the same as at first. Suffer me to recommend

this to be done at the end of every two months, when the tan should be always stirred.

The plants will thrive better by having a more regular heat ; when the pots are moved, if the leaves be slightly tied up with a piece of mat, they may be not only removed with great ease, but will yield much more room. After they shall have been replanted in the tan, cut the strings, and the leaves will fall in their natural order ; this method will preserve many from being bruised or broken.

In winter it is not proper to water the plants all over ; but with a common watering-pot, it is very difficult to avoid spilling water in the center of the plants. To remedy that defect, and to save time, make an instrument of tin, in form of a tobacco-pipe, about three feet long, the head to hold three half-pints, the diameter of the tube about three quarters of an inch, and contracted to about a quarter of an inch, at the other end : hold this in the left-hand, and with a small watering-pot in the right, direct the water only to the stem of the plants, without wetting the leaves ; and to water the farthest rows, have either another about five feet long, or additional piece of pipe two feet long, to join to this.

The crowns and suckers throw out roots much quicker, if planted first in the tan ; as soon as any
roots

roots appear pushing out, plant them in the pots ; but let the earth and pots lie in the stove, for a day or two before, that they may be well warmed, in order not to check the plants.

Once a year it is necessary to sift the tan ; do this in the beginning of March, by which means the small tan which is taken out, serves for a moderate hot-bed, to raise several things on, and saves three or four loads of dung, at that time of the year very scarce ; it also does particularly well to plant strawberries on, to succeed those raised in the stove, before the natural ones come in.

In a stove of this length, when intended to raise strawberries, one row may be had on the back-flue, two rows more on shelves over that flue, with two hanging-shelves, supported by small irons from the roof, and one row on the front and end flues ; in all the six rows will be about four hundred pots, to each of which must be a pan to hold the water. These, at one penny each, will cost upwards of thirty shillings, and generally take near two hours in watering, which, when the sun shines, is very disagreeable work ; the time it takes through the season, occasions an amount of about thirty shillings expence. By having six leaden-troughs, four inches wide and one deep, which will cost only about twenty shillings each ; (the value of the lead, as no folder is necessary) at the end of the

third year the whole expence of the troughs will have been saved exclusive of the old lead, to the value of near four pounds; such is the advantage of setting the pots in the troughs instead of the pans.

By this method all the four hundred pots may be watered in ten minutes; but having the convenience of the water in a leaden cistern, with some pipes and cocks to it, may be done in still less time. Plenty of water is so very necessary to strawberries, when in flower, that they suffer exceedingly for want of it, and in a stove this is particularly to be guarded against.

Never put dung to strawberries which are to be forced, it makes them too luxuriant in leaves, and prevents their blossoming. A good mellow loam is the best soil for them; some few fine coal-ashes, mixed with it, will be found of service.

The back-flue, being broader than is necessary for strawberries, is generally filled with larger pots for french-beans, cucumbers, roses, &c. In this case that leaden trough must be wider; and when any pots are too wet, raise them up out of the water, by putting a tile under them.

I have also raised asparagus, by putting about a peck of earth in the center of four pine plants, where nothing else could grow, and they have always

ways been much greener, than when forced by dung, and better tasted.

As many gentlemen have a stove, who have not hot-walls to force fruit, may I recommend to them to plant in pots some early May cherries, grafted on the bird-cherry, as mentioned in the Gardener's new Calendar, several of the newly-raised curious striped-leaved strawberries, and some dwarf french-peaches? By these means, they may bring upon the table, fruit growing in the pots, as the trees will not be eighteen inches high; some vines and figs may likewise be produced: and for nosegays, a double blossom-peach, and some of the best kind of roses which are not luxuriant shooters, especially the moss-province. Thus, may be raised a pleasing variety of fruit and flowers; and as these pots should, on the approach of winter, be first kept in the green-house, they will not be a long time in the stove; when they are in perfection, they may be again removed to adorn the green-house.

It is also necessary, to be provided with some spare panes of glass, a diamond, a proper hammer, and some small sprigs and putty, that when a square shall have been broken, the gardener may instantly repair it, which after a little practice he will do very well. The glazier had neglected coming for several days, and the cold in autumn

encreasing, I was obliged to send for some glass from London, which cost four-pence per foot; the gardener was so expert, that he repaired them afterwards, by which I saved half, the glazier charging nine-pence per foot. Having several new lights to glaze, buy the glass ready cut to the size wanted; employ a glazier by the day, and at least two-pence a foot will be saved; new work is charged at seven-pence a foot.

I have this spring seen several stoves and fruit-houses in Holland, but sought in vain for some improvements in them, different from ours; they are not near so commodious, nor so well contrived as the modern English ones.

A plan of the end of the stove, with explanations.

Fig.

- 1 An iron suspended from the roof, to support a hanging-shelf for 65 pots of strawberries.
 - 2 Ditto for - - 65 ditto.
 - 3 A shelf for - - 65 ditto.
 - 4 Ditto for - - 65 ditto.
 - 5 The flue for - 65 ditto, or 40 larger pots of French-beans, roses, &c.
 - 6 The walk. 40 pots of cucumbers to run up against the flue.
 - 7 The front flue for 75 ditto. —
- 80 larger pots.
400 pots of strawberries.

Fig.

Fig.

- 8 The first flue.
- 9 The second ditto.
- 10 The third ditto.
- 11 For fruit-trees or peas, if built out of the ground.

In a dry soil, the pit may be sunk two feet in the ground; but if quite out, fruit-trees may be planted against it, or peas; it must be covered with glasses, moveable in the summer.

A leaden cistern, four feet high, and two feet square, the wall being cut out a little, may conveniently be placed on the flue, at fig. 5, and filled by a pipe from without.

CHAPTER VIII.

*On raising forced peas in a pit, asparagus, melons,
and mushrooms.*

ALL sorts of early, or forced crops, pay so exceedingly well, that there are none so worthy of either the gardener's, or the gentleman-farmer's attention; as the latter has generally great plenty of dung, there is not any way in which he can apply it to so profitable a use, as that of raising forced crops, the dung being nearly as good afterwards. Among these, none pay better than peas, asparagus, and melons; but peas especially, because there are so few persons, who have pits proper for the purpose; they are eagerly sought after in spring, by the foreign ambassadors, and others, who want to give great entertainments; for this reason a common price, then, is a guinea for a pottle.

A frame must be made of wood, four feet high behind, three feet in front, and about five feet wide, the length according to your own option,
with

with glassess made to cover it, as other common lights for hot-beds ; but a great improvement in it, is, to have about two feet of the front made of glass ; for peas, it ought never to be otherwise, as they want much air ; the glassess in front should be in frames four feet long, every other one to slide behind the next, with list nailed to the edges, to keep out the cold air ; or else, two grooves the whole length, half the glassess to move, in each groove, by which all can be moved ; the inside of the pit, should by all means be painted white, or white-washed. By these sliding-glassess in front, the pit may receive air, much more conveniently, whenever it may be too cold to raise up the top-glassess.

But where expence is not so much regarded, brick-work, instead of wood is preferable ; for in the course of few years, it would be found to be full as cheap ; one additional convenience of the brick-work, is, that either in the back-part only, or all around it, at a very little additional expence in the foundation, a flue might be formed for occasionally making a slight fire, in very severe weather. This will greatly forward them ; where hot dung cannot be procured in plenty, by all means let a flue be made, because they can be equally as well forced by fire, as by dung ; indeed, they may be raised in these pits, by the help

help of the glasses only, without either dung or fire; for the second crop, those raised without any artificial warmth, do very well.

The principal thing in regard to peas for forcing, is to procure a good sort, not tall growers, which will ripen all together very early.

As the Mazagan bean, from the coast of Africa, is a very early sort, and of a low growth, it is perhaps improbable, that a good early sort of peas might likewise be brought from thence. There is also a dwarf pea, which does not rise above six or eight inches high, which sometimes is forced; but it is not so plentiful a bearer as the hotspurs are.

Early in October, the peas are to be sown in the common ground, in the usual way, excepting that the rows need not to be above six inches asunder. In November, before any strong frosts be set in, they are to be taken up very carefully, with a semi-circular trowel, and planted in the pits; if, towards the evening, before their removal, there happen to be the appearance of a sharp frost, as is frequently the case, they must be covered with peas-straw, or mats, during that night, and removed the next day, lest the frost continue. Sowing them in the common ground, and then transplanting them, prevents their being drawn up weak and tall, which would make them grow too high

high for the pit, were they to be sown in it at first.

Plant one row in a line against the back-wall, and the others in rows across, about two feet asunder. The dung must then be applied round the frame, in the usual way for making of hot-beds, and laid about two feet deep, and two wide in a trench digged in the ground, and raised up to the top of the wood, or brick-work. If fire be used, let it be made very gently, at first, and regulated by one, or more thermometers, placed in the pit; at first, in the night, let it only be kept up to the degree of temperate air, and never suffered to rise much higher; if the pit be kept too warm, the plants will be drawn up weak, made too tall for the frames, and bear but few blossoms.

The earth for the pit, should be a good sandy loam, digged some time before, frequently turned, but not too much rotted dung, lest the peas shoot too luxuriantly. When they shall have taken root, the earth near them must be frequently stirred up, and a little fresh mould must be added, from time to time, to keep the bed up to its former height, and to form a ridge against the peas, to help to support them. Particular care must also be taken that no slug-snails creep into the pit: however, to destroy them, spread foot, or lime over the ground; either

either of these, as well as ashes, spread near the the peas, will also greatly assist the plants.

As soon as the peas shall have been planted, sow some cresses, mustard, radishes, and plant lettuces between the rows; all these must be taken away, whenever there shall be danger of hurting the peas. Not the least pleasing circumstance will be, some asparagus also planted in the rows, if it be watered with the draining of a dunghill, diluted with water, to about the strength of one ounce of salt, to a gallon of water, it will be greatly forwarded: but the peas must not be too frequently watered with that mixture, as it would make them grow too luxuriant.

The asparagus, so raised, will be much better flavoured, of a finer green colour, like the natural grass, though perhaps not quite so large, as that forced with dung; and more time also must be allowed for its coming to perfection. I have frequently forced it with tan, and found it much superior to what is forced by dung: nor would it be amiss here, to have a small part of the pit, with some tan in it, for asparagus; about four feet betwixt every twenty: as, in a pit forty feet long, four feet in the middle should have tan, or there should be two places of four feet each in a bed of sixty feet long. The tan will contribute to warm the
the

the pit, especially if a hole be at any time made in it with a stick, to let out the steam.

The glasses must be constantly covered at night; with straw, peas-haulm, or mats, to keep out the frost; at break of day, let the covering be always taken away, whether the sun shine or not, except it snows violently; the light is quite essential, to make all parts thrive; if mats be used, (and they are best,) there should be a rail, with posts fixed in the ground, to hang them on to dry, as they are taken off; if their ends be turned down, and sown with packthread, they will be greatly preserved.

Whenever the weather will permit, the glasses must be opened, to give the plants air; some few sticks will also be necessary, with some thread, to support them. By these means, and proper management, peas may become fit to gather, by the latter end of February, or the beginning of March.

In February, according to the forwardness of the peas, prepare a hot-bed to sow some melon-seed; let the sorts be such as will ripen the earliest. Let it by all means be sown in small pots; as the plants put out the rough leaf, let each strong one be placed singly in a penny-pot, and taken proper care of till the peas be gathered: then clear out the pit to a proper depth, and white-wash the inside well,

well, with lime and water, which will kill all the insects, and give a freshness to the pit, equal to that which it received when it was quite new: it is a constant remark that all new stoves, greenhouses and pits, produce more healthy plants, than the old ones do.

If any tan shall have been used, put it all together, stir it well up, and if necessary, add a little fresh tan to it: let a division likewise be made by a board put across, to prevent the steam of the dung from coming to this part of the bed. The rest of the pit must be filled with dung to make a hot-bed, and when the bed shall be of a proper heat, let the melons be carefully turned out of the pots, and planted. A little earth must be put over the tan, and melons planted there also; in general you will find that those raised by tan have a superior flavour to such as are raised by dung. Here too, it is necessary to give a caution, to lay earth over the dung about a foot thick; but first, throw on a layer of cow-dung before the earth: most people err in that point: they put so little earth, that the fibres soon reaching the dung are scorched, and thus the plants are not half so fruitful as they otherwise would be: when the fibres strike into the tan, there is not that danger,

The yearly expences of a pit 100 feet long, will be nearly as follows.

	<i>l.</i>	<i>s.</i>	<i>d.</i>
Rent of about one quarter of an acre of			
ground - - - - -	1	5	0
120 bushels of tan, at $1\frac{1}{2}$ <i>per</i> bushel, -	0	15	0
50 loads of dung, if bought, will cost			
about 5 <i>s.</i> <i>per</i> load, - - -	12	10	0
20 ditto of loam, and carriage, at 2 <i>s.</i>	2	0	0
A gardener's attendance about eighteen			
weeks, at 9 <i>s.</i> <i>per</i> week, - - -	8	2	0
Seed peas, 20 <i>s.</i> Seed, and pots for the			
melon plants, 10 <i>s.</i> - - -	1	10	0
Asparagus roots 10 <i>s.</i> Fifty mats, 50 <i>s.</i>	3	0	0
	£ 29	2	0

The produce, moderately reckoned, will be,

	<i>l.</i>	<i>s.</i>	<i>d.</i>
50 pottles of peas, at 21 <i>s.</i> <i>per</i> pottle,	52	10	0
40 hundreds of asparagus, 5 <i>s.</i> - -	10	0	0
200 melons, at 3 <i>s.</i> - - -	30	0	0
The dung will be worth, at least, -	7	10	0
	£ 100	0	0

The lettuces, radishes, &c. are not reckoned; after the melons shall have been off, this pit will serve to raise collyflowers on, to be planted out under bell-glasses, before it be wanted for peas again.

Dung may also be very advantageously employed, in the common way of forcing asparagus; the same lights will serve afterwards for cucumbers and melons.

The making of beds also, for raising mushrooms, will be found very advantageous for sale, and of great use in the country, by always affording fresh ones for the table.

I have found cucumbers greatly improved by nailing them against a wall, and therefore would beg leave to advise some curious person to try what effect it would have on melons; there is great reason to think, it would improve them also. The hot-bed must be made so near the wall, that the vines may conveniently be trained to it, by shreds of woollen cloth; it would be proper to keep the lights over the roots to preserve them from the inclemency of the weather; if a board be fastened to the wall, with a bit nailed to the edge, as a spout, to shoot off the perpendicular rain, it will certainly be of use. One advantage with which
this

this method will be attended, is, that not near so many lights will be wanted; after the plants shall have been raised in pots, in a hot-bed, it may, perhaps, be sufficient to cover each of them with a hand-glass.

CHAPTER IX.

A Catalogue of most sorts of manures found in England; short remarks, describing the soils, and uses, to which they are particularly adapted.

IN several places are various kinds of manures, unnoticed by many farmers and gardeners, who continue ignorant of their value: that such may, from a perusal of a proper catalogue, be at once enabled to discover those manures conveniently within their reach, and to convert them to their profit, is the chief reason for the following: and, first it may be necessary to acquaint the Kentish farmers, and those in particular, who inhabit the coast, near Dover, that if they have spirit to avail themselves of some neighbouring advantages, they will not probably repent their undertaking.

To explain myself still farther, on the left-hand of the entrance into Calais harbour, from the rampart of the town, is thrown down on the sands, an immense quantity of horse-dung, street-sweepings,

ings, and other good manure; at high tides all this is carried away by the sea. Would the governor but give leave, (and there is no reason to doubt his consent) it might easily be preserved, till a proper quantity were collected, and then be shipped on board a vessel; and, surely the value of it might make ample amends for the trouble, which the farmer might be at in transporting it into Kent.

A Catalogue of manures, and the uses adapted to them.

Horse-dung, mules and asses dung.

When fresh, for cold stiff clays, to be ploughed in: when rotten, for kitchen-gardens and all sorts of land.

N. B. Stone-horse dung is stronger than horses, or mares dung.

Wild-beasts dung.

The strongest of any dungs, as the animals feed on raw flesh.

Sheep, rabbits, goats, hares, and deer dung.

All of much the same nature, being very warm manures, and fit for top-dressings.

Neats dung.

A cooling, rich dung, for dry sandy ground.

Hogs dung.

The same, but from their eating so many weeds, and they passing so soon through their bodies, their feeds are not destroyed, therefore not so fit for arable lands: but particularly good to be digged in at the roots of fruit-trees.

Pigeons dung.

The hottest of most dungs, and generally used for a top-dressing at spring, for wheat; as also for asparagus; for wall-trees in a wet autumn, for top-dressings.

Tame fowls dung.

For top-dressings.

Geese and ducks dung.

The same, but some think it poisons the grass, because horses do not like the grass, where geese have fed; this is rather owing to the strong salts in it.

Soil of bog-houses.

Is of so hot a nature, that it must be well mixed with earth, and frequently turned, before it be
laid

laid on any ground ; but it is proper for the compost-dunghill ; or being mixed with ashes to dry it, it becomes the sooner fit for use.

Dead animals of all sorts.

To be buried at the roots of fruit-trees.

Blood from the butchers.

Is at present very little used, though one of the strongest manures. It should be mixed with earth, saw-dust, or sand, for the convenience of carriage, and then used as a top-dressing for any land ; it is very good for fruit-trees. It has all the principles of fertility, in the greatest plenty, and the most equal proportion.

Horn-shavings, bones, hoofs of cattle, bits of leather, hair of animals, and woollen-rags.

For top-dressings for most lands. They attract the dew and nitre from the air. The woollen-rags are particularly replete with salts, occasioned by the dye, and the sweat of the body.

Salt.

The very principle and essence of vegetation ; fit for all lands, as a top-dressing, if not so dear. In wet autumns, a pound or two, spread on the borders, to each peach, vine, or pear-tree, gives a better flavour to the fruit.

Lime.

A general manure for all lands, whether stiff or light, except very sandy soils. A compost-dunghill should never be made without some mixed in it, to make it ferment, and rot the sooner.

Chalk.

Good for all lands in general; put some always in the compost-dunghills. After it has lain fifteen or twenty years on land, its effects seem to be lost; by deep ploughing you may recover it again.

Marle, and Fullers-earth.

Are a general manure, but excellent for sandy, dry, gravelly, or light lands: good even for mossy ground, and clay, if well dissolved: will make white-clover come naturally.

Sea-sand.

For cold strong clays, and is particularly used by the Florists. In Holland they draw the beds of their parterres into ridges before winter, and spread it on the tops of them.

Oyster-shells, and sea-shells, ground fine.

As these are intended to disunite the close particles of strong clays, the finer they are ground, the farther they go.

Sand.

Sand.

For stiff clays.

Gravel.

For stiff clays and boggy grounds. If full of large stones, screen it, and reserve the stones for the roads.

Lime-rubbish and brick-rubbish.

For cold strong clays, and boggy grounds, and at the bottom of grass and gravel walks, to prevent the worms.

To mix with the earth to make tulips break; for all variegated plants, to preserve their stripes; and to plant vines and figs in it.

Rotten wood and saw-dust, tanners bark, rotten leaves, and willow-tree earth.

For stiff clays; to make earth very light for florists; and to cover beds with in winter, to keep out the frosts.

Wood-foot, coal-foot, malt-kiln-dust.

For cold stiff clays, to kill rushes in meadows, and for top-dressings for corn in spring.

Malt-dust.

For top-dressing for any land.

Wood-

Wood-ashes, ashes from green vegetables, soap-boilers-ashes, pot-ash ashes, peat-ashes, charcoal-dust, turf-ashes.

To be always kept dry till used, being very full of salts; good for top-dressings. Ashes are almost a general manure for every soil: on clays, they separate the too compact particles; on light lands, they, by their salts, attract the moisture in the air, as the earth is always moist under them in summer.

Sea-coal ashes, and pit-coal ashes.

For cold stiff clays, either meadow or arable land; they will produce red clover. If not very fine, put a little unslacked lime amongst them, and it will reduce them to a very fine powder.

Chipping of stone and marble.

Good for clayey-soils, and for vines and figs.

Sea-weeds.

Very full of salts, and should be ploughed in directly, or made into a dunghill, mixed with earth, lime, &c.

Weeds of all sorts, offals of a kitchen-garden, and sweepings of small grass.

To be burnt for their ashes, if the seeds be ripe; otherwise, for the compost dunghill, or for a
slight

flight hot-bed for cucumbers, about April. Stalks of cabbages, and other strong plants, should be laid in the road to be well bruised; or else, as the pith rots, they harbour insects.

Sweepings of streets.

For meadow-lands.

Sweepings of herb-markets.

For the compost-dunghill.

Offals of fish.

Ditto.

Mud of rivers, fish-ponds, and ditches.

For dry, sandy grounds.

Oil-cakes.

A good top-dressing: are frequently imported from Holland; 15s. worth is spread on each acre.

Hops from brewers.

For clays, and proper to lay round newly-planted trees, to keep the earth moist.

Burnt-clay.

A very convenient manure; as after making of new ditches on clayey lands, a little brush-wood will burn a large quantity.

Clay.

For sandy land; or, when mixed with lime or ashes, for moist lands.

Sweepings

Sweepings of a dog-kennel.

Used by some Dutch Florists.

VEGETABLE MANURES.

Buck-wheat, tares, rye, everlasting-pea, clover.

These manures are to be ploughed in, when in their greatest luxuriance of sap, which is generally as they are coming into flower. By their fermentation they greatly fertilize the soil.

LIQUID MANURES.

Urine of all sorts, brine of salted meat, brine of pickled fish, soap-suds, liquors from dye-houses, salt and water, blood and water, or the washings of a slaughter-house.

For top-dressings, but when too strong, should be diluted with water.

Flower of brimstone and water.

To sprinkle over turneps, or to soak the seed in, before it be sown, to prevent the fly.

Human urine, horses, cows, and pigs urine.

Of the same qualities as their respective dungs: to be sprinkled over the beds of a kitchen-garden, parti-

particularly asparagus beds, in February or March : if used later in the season, to be mixed with water, and rendered of the same strength, as one ounce of salt, to a gallon of water, it is then very fit for watering ground to bring up seeds, or for grass-grounds. It has this advantage over dung, that it does not produce weeds.

In a compost-dunghill, may be a mixture of any sort of manure, but particularly some lime mixed with every layer, to make it ferment, and rot the sooner ; a pit or cistern made of bricks or stones laid in mortar, or else the bottom, well rammed with chalk, or clay, to preserve the drainings, is necessary ; the dunghill should be made in a shady corner, or covered over, to prevent the sun from exhaling the virtues of the dung ; it should be frequently turned, and no weeds ever suffered to grow on it : such as were once persuaded to try the draining from a dunghill, would soon see the value of it, and ever after preserve it with great care ; there are instances of persons selling their dung, and using only the draining : it has this advantage preferable to the dung, that by using it only, no weeds are carried to the ground.

The slacking of the lime also, in the compost dunghill, must greatly help to destroy the vegetative quality of the seeds of the weeds.

CHAPTER X.

Hints for improving of parks, and the flavour of venison; the profit of keeping deer and fish for sale; a cheap method of making fish-ponds, and of fattening kids, as a substitute for house-lamb.

AS the sale of venison now seems, from the taste of the present age, to be daily encreasing; it may not be unfit to acquaint the gentleman-farmer what is the nature and profit of breeding of deer for sale, and also to offer to the attention of the nobility and gentry some hints towards the improvement, not only of their parks, but of the flavour of the venison; any one accustomed to eat frequently of it, cannot but remark, how much the flavour of the venison of different parks varies; it is frequently inferior to that of good mutton; great also is the apparent difference which one park left to nature exhibits, and which, another glows, and flourishes with, beneath the cultivating hand of art.

It may be urged, indeed, that the different pasture and soils, give the venison different flavours;

flavours; such, for instance, are those perceived so materially amongst the various kinds of mutton; that near Montpellier, called *mouton de Gange*, is famous for its flavour, and for having fat spread through its lean flesh, like veins in marble, which is caused by the sheep feeding on a wild sweet-scented rosemary; our Bansted-down, Windsor-forest, and many other kinds of mutton, are particularly flavoured from the wild-thyme, and other aromatic herbs, which grow naturally on the pastures, where the sheep are fed. These, without doubt, are very probable reasons; but then, cannot the pastures be improved, and those kinds of herbs cultivated?

Parks are, in general, immense tracts of lands, fenced in from time immemorial, and so large, that it is impossible to cultivate or improve the herbage, without a great expence in hurdles, to divide pieces off from time to time, that they may be improved; the cost and trouble of this, few gentlemen choose to be at, and therefore leave it in just the same situation as their ancestors left it to them: but, were they only to give themselves the trouble of viewing those parks, where the owners have acted otherwise, they would soon be induced to follow examples, fraught with such manifest advantages.

1st. A

1st. A larger number of deer, and other cattle are fed.

2^{dly}. The flavour of the venison is improved; and

3^{dly}. The herbage, becomes beautiful to the eye, and is not disfigured with weeds.

If the deer be not of a fine large sort, some others must be procured, either by purchase, or from one's friends, and the present breed must be, by degrees, removed. To effect this, in a large park, will undoubtedly require some years; but with patience and perseverance it may be accomplished. Particular care should also be taken, that they come from a park, where the venison is well tasted, for if it degenerate afterwards, the fault will lie in the herbage; and that must point out the remedy.

As in all parks there are some small pieces of land fenced in, the fresh stock must be kept in those places till the others shall have been removed: so many gentlemen now breed deer for sale, that the difficulty of changing the stock will not be so great as it would have been some years ago.

But the chief fault undoubtedly lies in the herbage: most parks are in the same state in which chance or nature left them: many kinds of noxious weeds over-run the ground, and, to the great
loss

loss of many other good herbs, which would grow in their stead, are never pulled up.

That the different kinds of herbage have a great effect on the flavour of mutton and venison, is clear from the authority of Mr. Stillingfleet, who, in his valuable treatise on English grasses, makes this remark; “ I have always observed that
 “ the same kind of ground which yields good ve-
 “ nison, yields also good mutton; therefore it is
 “ proper to cultivate in parks those grasses,
 “ which are found plentifully growing on the best
 “ sheep-walks; that in particular ground, where
 “ the perennial darnel-grass grows, *Lolium perenne*,
 “ is not good for deer, as I ate some venison out
 “ of a paddock, not well tasted, which was
 “ chiefly filled with this grass. I have since eaten
 “ venison out of a large park, where there was
 “ much of this grass, and it was not better than
 “ that out of the paddock.

The crested dogs-tail *Cynosurus cristatus*, he thus particularly recommends. “ This grass, I
 “ imagine, is proper for parks; I know one
 “ where this abounds, that is famous for excellent
 “ venison. That this is good for sheep, I have
 “ found by experience; the best mutton I have
 “ tasted, next to that which comes from hills,
 “ where the purple and sheeps-fescue, *Festuca rubra*
 “ and *ovina*, the fine bent, *Agrostis capillaris*,

“ and the silver-hair grasses, *Aira caryophillea*
“ abound, having been from sheep fed with it.”

From the following circumstance, the flote-fescue, *Festuca fluitans*, must be very properly adapted to those parts of the park which lie very wet; “ a
“ field of this grass at Ruscombe, in Berkshire,
“ of four acres, and always lying under water,
“ maintained five good farm-horses in good health,
“ from April to the end of harvest, without
“ giving them any other kind of food, and it
“ yielded more than they could eat: there was a
“ mixture of the marsh bent along with it.”

Surely, therefore, one of the best methods towards improving the breed, is to examine some of those parks, where the most remarkably fine high flavoured venison is produced, and to get a skilful Botanist to remark minutely, what are the particular herbs, which abound most in them; then let gentlemen endeavour to cultivate those herbs, as quickly as possible in their own park. If they be such as cannot readily be propagated by seed, no method is so easy as the following; procure out of the park from which you choose to propagate any particular kind of herbs, some loads of turf, about three or four inches thick, and a foot square; pare off in your own park, as many spots, about a yard square, as may be equal to the feet of the other turf; lay one down in each place, and stick
a few

a few thorns round each turf, so laid down, to prevent the deer from biting off the flower-buds, of the different herbs and plants, before the seeds shall have been perfected. Either burn the turfs pared off, as they become dry, or lay them in heaps, to rot, for manure. Gather some of the larger kind of seeds, when ripe, to sow in other places: of many of the smaller sorts it is almost impossible to gather any quantity; these therefore, must be suffered to shed, and thereby to propagate themselves. In two or three years you will be surprized to find, how greatly the pasture will be changed; especially if the new planted spots be guarded with thorns, as before directed. I have observed that by laying down on a grass-plat, turfs with herbs growing on them, different from any that grew there before, all, in some few years became alike.

Wild thyme is an herb greatly conducive to the well-flavouring of venison and sheep; therefore it is, by all means necessary, that, if none grow spontaneously in the park, some should be cultivated there; as it spreads apace, let a turf of it be laid at about a rod asunder, and it will multiply greatly: delighting in dry soils, it must be planted only on the highest parts.

It is argued by some persons, that sheep and deer do not eat wild thyme; but as it is constant-

ly allowed, that the flesh is better flavoured by their feeding where it grows, it is certainly prudent to introduce it into a park, if there be none there before; perhaps the smell of it is of service to them.

It may be necessary slightly to hint several different means of greatly improving the herbage, and then to leave the owner to judge which method may prove most suitable for him to practise, according to the different circumstances of soil and situation, referring him for the particulars of each practise, to several of the modern treatises on agriculture, where he will find them particularly described.

Ground lying wet is a great enemy to deer: such places must, therefore, be drained, and no method is so effectual as an under-ground drain, in which stones, brickbats, or thorns, are laid for the water to pass through, and proper ditches and ponds made to receive it. By these drains, no ground is lost, and land not worth five shillings an acre, has been in a few years so much improved, as to let for twenty. In the Gentleman's Magazine, for January 1767, is a description of Mr. Cuthbert Clark's draining plough, to cut trenches twelve inches deep, twenty wide at top, and ten at bottom, which in many places may be sufficient; but

but the others must be about thirty deep; the particulars of making them may be seen in the Farmer's Letters, and in the Museum Rusticum.

If the land be much over-run with moss, rushes, flags, and other aquatic plants, paring and burning of the surface is the most effectual way; if there be but few, soot, or ashes and lime mixed together, and spread over them, will soon destroy them, when the water shall have once been carried off, but till that be done, they will never be conquered; if a plough with five coulter, as described in the Museum Rusticum, be drawn over the ground, it will enable the soot and ashes to penetrate to the roots of the weeds, and will the sooner destroy them; by white Dutch clover-seed sown in such places, the herbage will soon be changed into a good pasture, and consequently many more cattle of all sorts can be kept, and their flesh will be better tasted; nor should the having a person frequently employed to pull up all noxious weeds be omitted. It is surprising, how soon one may clear a considerable spot of pasture ground from large weeds, if a proper iron were fixed in a kind of walking-stick, though used only when a person walks over his land, for his amusement: instead of having thorn-trees growing promiscuously, as in too many parks, let them be

planted either in rows or clumps? their shade will form a fine shelter for the deer.

Another method greatly conducive to the keeping and quickly fattening a great number of deer, will be to appropriate some few acres of land, to be cultivated with burnet, cabbage-turneps, lucern, and carrots; cabbages, turnep-cabbages, favoys, parsneps, and turneps, may also be given to them; but the others are not only more conducive to the well flavouring of the venison, but more fattening: there is also this advantage in them, that they afford a constant succession of food. Early in February, the burnet will be fit, then the cabbage-turneps, before the natural grass comes in; and in dry summers, when that shall have been burnt up, the lucern will be a certain resource from April to October: after that, the carrots, which are known to be one of the best foods for fattening all sorts of cattle, and are eagerly eaten by all; by having this spring and winter food, a much less quantity of land will be wanted for hay.

As from these hints, many persons may be induced to breed deer, so, if they can improve their land to be worth twenty shillings an acre, instead of five, there must consequently be four times the quantity of herbage, and four times as many deer kept on it; and as land cultivated with burnet, cabbage-turneps, lucern, and carrots, will feed
four

four or five times more cattle than natural grass ; by having a proper number of acres thus cultivated, a much greater number of deer can be kept on the same land : and park-paling being very expensive; it may invite many to breed them, who otherwise had not land enough for that purpose.

Duhamel, treating of lucern, asserts ; “ that
 “ one good acre of lucern at three prime cuttings
 “ only, is superior in quality, and equal in quantity,
 “ tity, at each time of cutting, to the produce of
 “ two acres of natural grass in dry meads ; since
 “ such fields, if we act like prudent husbandmen,
 “ ought never to be mown but once a year : consequently,
 “ one good acre of lucern is equal to
 “ six acres of common pasture lands. And, if
 “ the same comparison be extended to downs,
 “ heaths, and commons, which are generally
 “ supposed to produce but one fourth as much as
 “ inclosed pastures, tolerably well managed ;
 “ then a single acre of good lucern, is as twenty-
 “ four to one, when compared with the last mentioned
 “ grounds.” And are there not in most parks many acres of such lands, which, if cultivated, would produce good lucern ? What a loss then to the owner, when, perhaps, he is wanting more land, without ever considering, that if by proper cultivation he can produce as much her-

bage from one acre, as from four and twenty in their natural state, it is equal to his having twenty-three acres more.

He also informs us, that he has received ten tons of hay, or forty tons of green, from a single acre of transplanted lucern; but from the general testimony of all who have cultivated it in drills, one acre has generally sufficed for three horses or cows for near six months, before the method of transplanting it came to be practised. This should be remembered, that it is much better to be cut a day or two, and lie in a shady place before it be given to any cattle; and it is further to be observed, that when oxen or heifers are fed for the butchers with it, their fat will spread itself, like veins in marble, through the lean flesh, and one may certainly expect it to have the same effect on the flesh of deer: but let every person, who has a mind to cultivate this valuable plant, first consult Mr. Harte's essay upon it, where he will meet with much pleasing instruction, in the remarks of a masterly author, to whom every lover of agriculture must think himself greatly obliged. With great deference, however, to Mr. Harte, before I quit the subject of lucern, I beg leave to offer a remark of my own concerning the culture of this plant, which is worth trying. It is generally allowed by many experiments hitherto made, that
the

the broad-cast has always for the first two or three years, produced more in quantity than the drilled, till the weeds shall have overpowered it ; and also that transplanted plants produce more than those sown, owing certainly to the tap-root being cut off, and causing it to throw out several others, which afford more nourishment than only one root can do : from these inferences, planting it nearly to imitate the broad-cast, seems likely to produce the greatest quantity ; I would therefore have it sown broad-cast ; in the tour through lately published, is a description of a machine for that purpose. Afterwards, let the plants be hoed, so as to stand six inches square, and in autumn let them be transplanted into rows ten inches asunder, and six inches from plant to plant ; let them remain in this situation as long as the weeds can be kept down, with common hand-hoeing, which perhaps may be two or three years, and they may be harrowed with a harrow, as described in the Farmers Letters, page 205 : but if it be found that the tines are too close and tear the plants too much, let every third tine be taken out, and there will only be two passing betwixt each row : when the plants are so large, as almost to cover the interval, let every other row be dugged up, and if they be not too old, they will serve for another plantation ; I have moved them at two years old, and they have

have succeeded very well : the horse-hoe can then be introduced into the intervals, which will be twenty inches wide, and in two years more, if the plants thrive vigorously, the other row must be taken away, and every other plant in the row, and they will then be left at the distance of three feet four inches, as recommended by Mr. Harte, and each plant one foot asunder ; or if ten inches be thought too near at first, let it be planted at about thirteen, and then there will be only two rows to be removed.

It would scarcely hurt the lucern when planted at such a distance, if, in September, there were planted one row of favoys or some coleworts in the interval, these being the least drawers of the soil of any of the species of cabbage, and will be all gathered long before the lucern begins to shoot in spring. Many may be induced to cultivate it on this plan, for the profit of that second crop ; as an acre will contain, if planted at two feet asunder, 6534 favoys, which, if sold for a half-penny each, will amount to 13l. 12s. 3d. and if they weigh only four pounds each, will produce 26136 pounds, or 11 tons, 13 hundreds, and 40 pounds of green fodder, for the cattle in the winter. On the whole, therefore, suffer me to recommend the lucern to be planted at such a distance as to allow a row of favoys, cabbage-tur-neps,

neps, or cabbages, to be planted betwixt each row; and if forty inches be too near, let the intervals be about four feet wide, as from this method the same ground will produce green fodder near all the year round, which may induce many to follow it.

The great quantity of carrots produced from an acre, may be seen by referring to the Farmer's Letters, page 216, "where, from light sandy loam, or rather an absolute sand, (as it was so loose, that a shovel, with scarce any force made a hole, a yard deep) carrots were taken up in October, some of them as large as the body of a quart bottle, and very long and straight, and they had often from twenty to twenty-four loads on an acre, each forty bushels;" and the use they have been made of, for feeding of cattle, may be seen in Mr. Billing's experiments, related in the Museum Rusticum; in soils too stiff for carrots, it would not be amiss to substitute parsnips.

From these two very valuable crops, and the assistance of the burnet and cabbage-turneps at Spring, a person may easily figure to himself, how much larger a number of deer, may be kept on the same land; and from all accounts, in the usual manner that deer are now kept, the profit is much greater than the same land stocked with sheep; according to the account of the author of the Farmer's Letters,

Letters, the profit is only ten shillings per annum, on an average, in lamb and wool : but how much more will it be, with these improvements, for procuring so much more food from the same land, as the demand for felling venison now so well in London and its neighbourhood, will not, probably, at any time be lessened.

The present retail prices of buck-venison are according to the size.

	<i>l.</i>	<i>s.</i>	<i>d.</i>		<i>l.</i>	<i>s.</i>	<i>d.</i>
A haunch from - -	1	11	6	to	1	16	0
A side, - - - - -	0	10	6	to	0	14	0
A shoulder, - - - - -	0	3	6	to	0	5	0
A breast, - - - - -	0	1	6	to	0	2	0
	£ 2	7	0	to	2	17	0
For the other half,	£ 2	7	0	—	2	17	0
The whole buck,	£. 4	14	0	to	5	14	0

As the head, chine, umbels, fat, skin and horns, are not reckoned here, it may be supposed that every buck produces about six pounds profit, or more, if there be only a commission paid at the shop, where it is sold in town.

The does are usually sold from about a guinea to thirty or forty shillings in London, exclusive of the

the skin and offals, but much depends on the condition they are in ; for during last winter, eighteen shillings were asked for a haunch of doe-venison. The number of deer to be kept on an acre is not absolutely to be fixed on, but must wholly depend on the quality of the land, and the care that is taken in improving the pasture ; and on raising the cultured crops of burnet, cabbage-turneps, lucern, and carrots ; if the hints I have given be followed, I am confident, that every gentleman will soon find great advantage and profit from them.

As water is both necessary and ornamental in a park, if any land lie very low, or should be wet and spongy, it will be found much more profitable to convert it wholly into water, which its natural situation will render practicable, at an easy expence, and with little more than raising a bank across it ; if the ground require being digged much deeper, that digging may also be converted into profit, by affording manure to spread on the adjoining land.

In the Autumn, preceding the Summer in which the work is intended to be done, there should be digged a trench, or ditch, the whole length of the ground, with several cross ones, if necessary, to lead into the principal one. This by spring, will greatly drain the ground ; and as soon as the weather will permit, let the turf be plowed up, and when dry,

dry, carried away to the higher ground, where the manure may be wanted, and there laid in heaps to be burnt. If the ground be clayey, some of the clay may be also burnt with it, to encrease the quantity of manure ; or else, mix some dung with the turf, and in once or twice turning, it will be rotted sufficiently. When the earth sufficient for the head of the pond shall have been wheeled away, in all probability the pond will be six or seven feet deep, which is depth sufficient.

In making the sluice, take care that it be sufficiently large, to discharge a great quantity of water in a little time, in order that, when hasty rains come, the pond may not overflow ; few are made properly in that respect. Besides the sluice, have some few feet of iron or wooden railing at the head, above the common water height : this will give more room for the water to pass off, when it suddenly rises high, and frequently save the fish from being carried away by violent showers.

If, by many means, a communication can be had with a river, from the pond, it will support half as many more fish, than if it were a standing water, or only fed by a small spring, by reason of the great quantity of food brought along with it ; it will also be an additional ornament, keeping the water clear, and free from scum.

In

In stocking the pond, the fish of one or two years old, will be found to answer better than larger ; carp and tench will be the most proper sorts ; but reject eels, as they destroy many fish, and especially the spawn ; cray-fish also will be found very profitable at the London markets.

In the third year, many of the fish will be fit for sale, and from one acre of water, there is a chance of taking at least one hundred brace a year, which, if sold for only a shilling a piece, will produce ten pounds per annum ; in general they will sell for much more.

If possible, there should be more ponds than one, to have some for breeding, and others for feeding ; then they may be so regulated, as to produce always a certain quantity of fish for sale each year, and they should be sent to market at those seasons, when they fetch the greatest price.

An additional profit, as well as ornament, may be had also, by keeping some ducks upon the pond, which will not be detrimental to the fish, as they do not feed on them ; in fifteen or twenty years, the pond will also, on being drained, afford a large quantity of manure.

By this method, land, which before was not worth five shillings an acre, may be brought to produce more profit than the best in the park, be a very great ornament, and at the same time a receptacle

ceptacle for the waters, which by drains may be conveyed into it, and greatly drain, and improve all the adjoining land.

As many persons may imagine it a very great expence to remove earth sufficient to convert an acre of land into water; I shall compute the charge at which it may be done, supposing no advantage to be had from the soil being of use, as manure for the neighbouring land, and all the earth to be moved away.

If the ground lie in the least favourable for the purpose, removing it away three feet deep, on an average, will certainly make the pond deep enough; for part of this earth will be carried to form the head, which is answering the same purpose as digging it so much deeper: there will then be the digging and carrying away 4840 cubic yards of earth, each of which is generally allowed to be an usual cart load; the digging and filling of each cannot be valued at the utmost, at more than two-pence, and the distance to which it may be necessary to carry this, cannot entail a charge of above four-pence more: If, therefore, this can be done for six-pence a load, the acre will cost one hundred and twenty one pounds; but then from this, there must be a deduction of the greatest part of the earth, which forms the head, from any further expence, more than digging and throwing up the
bank,

bank, and likewise the same for several feet all around ; therefore one may suppose that saving to amount to, at least, twenty pounds, and then the pond will cost only about one hundred.

There is also another method of making it, at a very easy expence, if not wanted to be done in one year. The first spit of earth, for about a foot deep, will be found of great service for improving the neighbouring land : if this be moved away for manure, a profit is received by it, and it cannot be laid to the expence of the pond ; then plough it up, and crop it with corn, beans, or any other crop which suits you, or the land ; I would advise a drilled crop. When this earth has been meliorated, by the influence of the atmosphere, and by stirring it with the horse-hoe, so as to be fit to improve other land with, move it away, and by repeating this two or three times, in the course of about four years, the pond will be of the depth required, with a very little expence, as I once experienced myself in making a piece of water ; but this can only be practised, if the land be dry enough, to allow to be cultivated, after each spit be taken away ; if it be wetish land, it will produce large cabbages for cattle, or favoys.

It might, perhaps, be serviceable if those gentlemen who have land fit for the purpose, would breed goats ; as the land which suits them, will

K

scarcely

scarcely produce half a crown an acre, and cannot well be put to any other use; nor is it improbable but that kids, fattened as house-lamb, would sell well; at least the novelty of it would, at first, cause them to be purchased in and near London.

There is also a species which might be propagated, whose hair would turn to a very good account. Mr. Tournefort says, that the goats of Angora, one of the chief cities in Anatolia, are remarkable for their hair, which is eight or nine inches long, finely curled, and of a dazzling whiteness; that many rich stuffs are made with it, but chiefly camblets. The common price of it, after the natives have spinned it, is not dear, if it be purchased on the spot; but an *oke*, or 25lb. weight of the very prime sort, for the use of the grand Seigneur, often sell for 5l. sterling.

These and the goats of Tripoli, which were the Cyniphan breed, so much extolled by the ancients, according to Mr. Harte's account, having been made denizens of Sweden, would consequently live in our climate.

Goats bred in any quantity, might soon prove of great national advantage, were the kids substituted instead of house-lamb, which would help to abate the price of mutton, by encreasing the number of sheep; and by consulting Mr. Ellis's
improve-

improvements on sheep, grafs, and lambs, printed in 8vo. may be feen the method of fattening lambs, which will afford fome hints how to fatten the kids to the greateft advantage.

Park-paling being fo very expenfive, it might be proper to try whether the hornbeam hedges, as defcribed by Mr. Harte to be common in Germany, fome of which alfo are to be feen in Flanders, would not be a fufficient fence for the deer; if fo, they would prove confiderably cheaper than pales. They muft be planted in the form, as in the plate, and where the trees touch one another, the bark muft be cut away a little, and the trees muft be faftened together at that part by a ftring: in a little time they will firmly unite, and a ftrong growing pallifadoe fence will be formed. The height of it may be four, five or fix feet; it might not be amifs to try fome other forts of trees in this manner, befides the hornbeam.

It might be proper, alfo, by way of attracting partridges and pheafants, to have fome buck-wheat fown in the middle of the park. It has an amazing quality in fattening almoft all forts of fowls; and poffeffes this advantage, of not requiring to be fown till a month after the barley feafon, when the hurry of bufinefs fhall have

been over. There is scarcely a species of fowls but what is surprizingly fond of it.

In Germany also, it is not uncommon to move their bee-hives in boats to the neighbouring fields, cultivated with buck-wheat, where they have a communication by water ; the bees are so fond of it, and receive such great nourishment from its flowers.

CHAP.

CHAPTER XI.

A small artificial warren to keep rabbits in, in a lawn or garden, without their doing damage to the trees, &c.

RABBETS are of such general use and convenience for the table, their dung is so necessary, and the profit from their skins so serviceable, that no gentleman's farm can be said to be compleat, without breeding some. Without doubt, they would be kept by many more, were it not for the extraordinary trouble attending them: when they are kept the usual way in hutches, it takes one person's whole time to look after a small quantity; if they be confined in a room, the smell is so disagreeable, that one can never go into the place with pleasure; nor can they be kept in any one field, without their greatly damaging the neighbouring crops. Having heard that a person had kept some by digging a circular ditch, and confining them to a little hill in the middle;

I from that description took the hint, and made a small artificial warren in a lawn in the garden, in the following manner; it was a very agreeable object, and the rabbits succeeded very well in it.

Pare off the turf of a circle, about forty feet diameter, and lay it on the outside; then dig a ditch within this circle, the outside perpendicular, the inner sloping, and throw earth sufficient into the middle, to form a little hill, two or three feet higher than the level of the lawn; the rest must be carried away, then lay down the turf on the hill, and beat it well to settle it.

The ditch at bottom should be about three feet wide, and three and an half deep, with two or three drains at the bottom, covered with an iron grate, or a stone, with holes, to carry off the hasty rains, in order to keep the rabbits dry; in the outside bank should be six alcoves, the sides and tops supported either by boards, or brick-work, to give the rabbits their dry food in; by their different situations, some will always be dry; six boxes, or old tea-chests, let into the bank, will do very well.

If the ground be very light, the outside circle should have a wall built round it, or some
stakes

stakes driven into the ground, and boards, or hurdles, nailed to them, within a foot of the bottom, to prevent the bank from falling in: the entrance must be either by a board, to turn occasionally, across the ditch, or by a ladder.

The turf being settled, and the grass beginning to grow, turn in the rabbits, and they will immediately go to work, to make themselves burrows in the side, and in the hill. By way of inducing them rather to build in the sides, to keep the turf the neater, make a score of holes, about a foot deep, and they will finish them to their own mind; and if there be a brick-wall round it, it should be built on pillars, with an arch from each, to leave vacancies for the burrows.

Another way is, to dig the ditch only about two feet deep, which will yield about earth enough to make the hill; put some pales, about a foot high, on the outside, for that will be a sufficient height to keep the rabbits in.

Feed them, as other tame rabbits are fed, and in wet weather sprinkle saw-dust at the bottom, by which means the quantity of manure will be encreased; once a week, is often enough to take it away, the quantity will be surprising; nor will the smell be in the least offensive, even

though it be quite close to the house. In a very large lawn, two or three of these hills, with the rabbits feeding on the top, will not be unpleasing objects.

If the bucks happen to be mischievous, in killing the young ones, they must be chained in an alcove, or else have their liberty, as in a warren.

After a great snow, they will want some assistance early in the next morning, because the ditch will be near filled, and perhaps the alcove, where the hay is, will be blocked up.

It is a great improvement, to castrate the young bucks, and keep them till they are full grown before you kill them: the flesh will be amazingly finer, whiter, and tenderer; but then it will be best to take them away, and keep them in another warren, lest they should be too numerous, and disturb the breeding does; or else, have a few hutches in the alcoves, to fatten these in.

As oil-cakes are found of great use in fattening cattle, it is probable they would be as useful in fattening rabbits; it is asserted that some of the oil mixed with the pollard, or buck-wheat, is cheaper than the cakes; never having made the experiment I cannot ascertain its superior advantages.

There

There ought to be one buck to every eight or ten does, and attention should be had to the breeding those sorts, whose skins are in the greatest esteem with the furriers and hatters ; the skins are generally of more value than the flesh, especially in the winter, against which time contrive to have the greatest quantity of the fattened bucks.

Where does are kept in hutches, they are supposed to breed six times in a year, and only five young ones are left to each, which are thirty from each doe : but as these are in a more natural way, and the young ones, difficult to be gotten at, let us suppose about six and thirty to be produced from each doe ; reckoning only 7*d.* for each, there is a guinea profit from each doe, as the additional value of the skins in winter, and the dung will more than pay the expence of food, and attendance on them.

It is quite necessary that those who keep many rabbits, should cultivate some lucern, parsley, and carrots, as no other vegetables are such proper food for them as these ; they should also be fed on some of the best upland pasture hay ; for if it be coarse, so far from eating they will waste it. Lucern hay is very proper for them.

If a warren be made on the same plan for hares, it ought to be much larger, and some furze
and

and thorns planted on it, for cover for them; but if there be not several rods of ground in it, there will be no chance of their breeding; therefore the warren can only be supported by turning leverets into it.

CHAP.

CHAPTER XII.

A description of some new convenient garden-tools and utensils ; a small cart, drawn by men, to do double the work of wheelbarrows ; a simple machine for expeditiously laying out serpentine walks ; semi-circular spades, to transplant trees with ; hand-glasses framed with wood, instead of lead, and tin spouts recommended, instead of leaden ones, to convey water down the sides of houses ; rules for keeping tools in order.

A Useful Cart.

THE modern methods of laying out gardens, making of mounts, terraces, slopes, &c. are attended with a great expence of moving a large quantity of earth ; but a part of this expence may be saved by using a particular cart, in preference to either three-wheeled carts, drawn by horses, or wheelbarrows ; on all occasions, requiring the conveyance of loads to only the distance of three hundred yards : add to this, that in many gardens horses cannot be introduced without detriment.

Make

Make a light cart, four feet long, three feet wide, and twenty-eight inches deep, fix it on a pair of old chaise-wheels, with an iron axle-tree; (the hind-wheels draw the easiest, but either will do :) it must have a pole before, about five feet long, with a bar across at the end, for the men to take hold by, and a stick fastened with two iron staples, both before and behind, to reach within an inch of the ground, to keep the cart on a level, when filling.

The cart will cost 20 or 25s. exclusive of the expence of the wheels.

Three men could draw in this, as much as seven or eight wheelbarrows would hold, when heavier laden, another must push behind.

In this my coals were brought from the water-side, about two hundred yards, for 8*d.* a chaldron; before I paid 25*d.*

Some boards were afterwards fixed all around it, about fifteen inches deep, and then it held 25 bushels of tan. When used on the garden-walks, the wheels and axle-tree were taken off; a cylinder of cast-iron, thirty inches diameter, and three feet long, was fixed on to roll the walks, and the cart then served to carry away weeds, &c. or to hold a water-tub, containing 40 gallons of water. The tub should be suspended on the sides of the
cart,

cart, in the same manner as in a water-wheelbarrow with a large cock near the bottom.

A Machine for forming Serpentine Walks.

To form the serpentine walks, two deal-boards, a quarter of an inch thick, eight inches wide, and ten feet long, were joined together by two pair of hinges, and a round stick, nine inches long, was fixed into the middle of each, to move them by; these were afterwards made to form exactly a small segment of a circle, and were reduced at each end to about three inches in breadth.

To form a serpentine of sixty feet in length, the machine was placed on the ground, whilst a person stuck some marks close to it, and repeated these twice more. The machine being then turned the contrary way, and sixty feet more being marked, the event was, that, in less than five minutes, a serpentine of one hundred and twenty feet might easily be marked. If the bends should be quicker, and more curved, make another machine, some few feet shorter, and then the segment of the circle will be more circular. It is inconceivable how much ground two men will form in a day, with two or three of these machines, of different dimensions; and the turnings in the serpentine will be easy and natural.

Semi-

Semicircular Trowels and Spades.

To transplant flowers and trees, with the mould remaining to them, three trowels of different sizes were made semi-circular, and for trees, three spades in the same form. With the largest spade, a tree might be taken up with half a bushel of earth about it. This method proved extremely useful, and saved many valuable trees by it. The price is but a trifle more than for a common spade of the same size.

To rake walks, covered with sand or coal ashes, an iron rake with blunt teeth, and only three quarters of an inch long, leaves the walks much more solid than a common rake.

To move flower-pots expeditiously, make a long hand-barrow to be carried by two men, and a great deal of time will be saved.

Hand-glasses framed with Wood.

The common hand-glasses, framed with lead, were exceedingly inconvenient, soon broken, and always out of repair. Instead of lead, the frames were afterwards made of wood, about twenty inches square, three times painted, and the glass was put in with putty. The frames of deal, nailed together, cost five shillings each; oak ones, neatly mortised like a sash frame, cost eight shillings.

Tin

Tin Spouts.

It often happens that a good border is spoiled in a garden, by the water rushing from the gutter of a house, or other building; in this case, not choosing to be at the expence of a leaden pipe, make one of tin, two or three inches diameter. Pipes of two inches diameter cost about four-pence a foot; pipes of three inches diameter, cost seven-pence. It is in one sense superior to either leaden or wooden pipes, because it may, by a few slight irons, be detached four or six inches from the wall, and never makes the house damp. If painted, it will last many years. In France and the Netherlands, it is used to bring down the water from very high churches, but is seldom painted there.

Rules for keeping Tools in Order.

As I, without the advantages of much assistance from others, lately made a new garden of some few acres, an opportunity presented itself to me of inspecting more narrowly the tools. My wheelbarrows were made as light as possible, and always kept dry; because each additional pound they weighed, was a loss every time they were wheeling. The proper weight for an ordinary man to wheel, was about three hundred weight, therefore a bushel of earth was always weighed before we began, that the barrows might be properly laden.

Earth

Earth weighed about 140, sand 160, and gravel near 170lb. the bushel.

It was a general rule that all the labourers should be furnished with tools, much is lost in digging each time, when a spade wants an inch or two in length; and a poor man cannot be expected to have always a new one. A spade, with moderate digging, wastes about an inch, in length, in a year. The iron of the pickaxes was always made three feet long, and would do double the work of common short ones.

All the wooden tools were painted, the iron ones being kept free from rust, were greatly preserved, and on the wall of my tool-house a card was nailed, with the number and name of each tool, corresponding to a catalogue; by these means none were ever lost, as at one glance of the eye, it might have been seen if any one were missing, each being so regularly put in its proper place at night.

Tools left in the wet, and not kept in good order, cost double the money, and never do the work either so easily, or so well. By this method, and letting the gardener have plenty of them, he soon piqued himself on the collection of his tools, obliged the labourers constantly to bring them back clean, and to put them in their respective places every night.

The

The nurseryman and farmer will equally profit by a proper care of their implements of husbandry, but more especially the farmer; he should, at his leisure hours, make a shed, to cover them from the wet, to be open only to the south; if possible, the horse-pond should be made so, that the carts and waggons might be drawn through it, to clean them before they shall have been set by, which would greatly preserve the wheels. Were they but to see the waggons of the farmers in Holland, they would find them kept with the same care, as the coaches are in England. If all landlords would encourage their tenants, by giving them some wood to erect their sheds with, their rent would be better paid, by their not having such large bills to pay to their wheelwrights.

In the hoeing of either borders or walks with a Dutch hoe, if the hoes be made with both edges sharp enough to cut the weeds, the work is dispatched much quicker; they should be made a little circular, on the back part, to cause the other edge to cut, which it readily does, by dropping the hand a little lower, as you draw it towards you: In some few shops in London, they may be found made this way, but the method is not yet general.

CHAPTER XIII.

A description of the Bridge Sans-Pareil, near Calais; a machine of boats, and scythes, to cut the weeds in rivers; an account of some new navigations carrying on in Flanders, and their methods of conducting them; of various mills and machines in Holland; of navigable canals, and their manner of travelling on them; and of the advantages which would accrue to this nation, by having several such here.

OF all the various travellers who have passed over this bridge, I am surprized that no one has yet given the public a description of this curious piece of architecture; not having seen any in print, I will do it as well as I can, without pretending that the dimensions are quite exact, as I had not time nor opportunity to measure them.

It is built on the high road, about six miles from Calais, on the road to St. Omer, and where the canal from Ardres to Gravelines crosses the canal from St. Omer to Calais, which would have made it necessary

cessary to have had four bridges, whereas this is judiciously effected by one. Underneath the centre of the bridge, is a view of four rivers, and four semi-circular arches, of about twenty feet wide, and about twenty-two high, from the surface of the water, all joined together; when on the top, four great roads present themselves to the eye, and four rivers with vessels on them. The abutments are on the four necks of land, betwixt each canal; it is built with a stone, a little resembling Purbeck, and on the water, has a much better effect than on the land, as there is only a low wall to it, without any ornaments; but in a fine garden or park, with a building on it, in character to the bridge, it would be inferior to none of the beautiful buildings in the English Gardens; an additional reason for my noticing it here is, that as the arches might, by a very easy contrivance, be occasionally closed, it would then form a magnificent cold-bath, or would be an agreeable place for music.

When the weeds grow up high in these canals, they provide as many boats, as will, when joined together, cover rather more than half the canal; upon these boats are nailed boards, to make a level floor, and there is a rail fastened about two feet high, at one end of the boats, on which rail, poles rest about twelve or fifteen feet long, at the end of each of which are fixed two scythes, each

scythe near three feet long, the edges set outwards, and extended about twenty inches from each other, at the points: there is a man to guide each pole, by a handle, a foot long, fixed across at the end, as it lies over the rail, into the water, and by the moving it backwards and forwards sideways, and drawing it up and down a little, it cuts the weeds. The machine is towed by men or horses, and there must be a man or two to steer it; at proper intervals they halt, and draw up their scythes to whet them. This machine was at work on the canal from St. Omer to Dunkirk, in June 1767, the water being about five feet deep, and the poles about fourteen feet long, but they must be adapted to the depth of the river; from the place where I saw it, returning up the river, the next day, to cut the other side, I judged they had cut about six English miles the day before. The weeds immediately rise up to the top, as soon as cut, and by fixing a few stakes in the river, may be easily stopped, and drawn out for manure; no one, that I saw, took these away, they went down the stream, and were carried into the sea at Gravelines and Dunkirk.

Whilst so many of our nobility and gentry, now travel abroad, it is surprizing that more of them do not attend to the great improvements, which
might

might be made on their estates, by having navigable canals from most of the great towns. It is true, the flatness of the Netherlands makes them more easily executed there, than in many parts of England; but yet in Artois, where they are now making a canal from St. Omer to Aire, the country is far from being level, there being a hill, a mile from St. Omer, where the ground rises near forty feet; yet they easily make the boats ascend it, by means of seven pair of gates, at each of which the boats rise about six feet; by which we see that no impediment, arising from such inequality of ground, need hinder navigable canals from being made. They there feared, that the common supply of water would not be sufficient, for the loss occasioned by the fall, and therefore had prepared a small cut from a rivulet, two miles off, to bring more: but when they had cut their canal on the top of the hill, they found several fine springs, which afforded such great plenty of water, as to prevent them from wanting the other, as will generally be the case in most hills, and often greatly assist a navigation with plenty of water. This now wants only six miles of being finished, and then there will be a communication, by water, from Calais, Gravelines, and Dunkirk, to Lille. They have also had a survey made for a new canal from St. Omer to Gravelines, the additi-

onal water from Aire will greatly assist that navigation, and enable them to enlarge that harbour; this was said to be their intention. With the earth carried from the canal, they form a line of defence, which, in case of a war in that quarter, will be found very useful to the French.

To have sufficient hands to carry on this work, the barracks of Aire and St. Omer are filled with about six thousand troops, some of which are the Irish brigades; a camp is formed on the side of the canal, with huts made of slight wood, the sides and roofs being covered with straw for the officers and men to lie in, instead of linen tents; in places much exposed to wind, they are sometimes covered with boards. There were eighteen hundred soldiers who were relieved every Sunday fortnight; by this change, every soldier works a fortnight in six weeks, which is certainly a very proper way of employing them in this time of peace, and worth imitating in England. They have a light frock, and coarse linen breeches to work in, to save their regimentals; the country labourers are in number about six hundred; with these 2400 men, it was supposed that they would finish four English miles in a Summer.

Great care is taken that the sutlers supply them with provisions of all sorts, both cheap and good, the king had ovens built to bake the bread in, to prevent

prevent impositions from the bakers. I drank good strong Bourdeaux wine there, at about the price of London porter.

Where any works of this kind are carried on in England, this method of building some slight huts for the labourers to sleep in, commodious to the work, would be of great service, as the workmen can be so conveniently called together, especially after having been hindered by sudden showers, and it would save much trouble to the surveyors. Proper sutlers might, likewise, be appointed to supply them with good provisions, as they would readily be at the expence of building the huts.

They were paid thirty sols per cubic toise, which is about fifteen-pence sterling, for digging; and then a further price for wheeling, according to the distance. The French toise is six feet, and their foot near three quarters of an inch longer than the English.

Every thing was carried on with great exactness and good management, excepting in regard to the tools; the surveyors suffered the workmen to bring home their spades and pickaxes, without their cleaning them, which kept them constantly rusty, and unhandy to work with: nor did they take proper care in laying their earth, but frequently left the gravel at top, over several feet of good earth, which spoiled many acres of excellent land;

a thing which might have been avoided without any additional expence, by covering the gravel with some few feet of good earth.

The manure which these canals afford is amazing; great numbers of men being employed to deepen them, every eight or ten years, according as they want; and this is excellent manure for the adjoining lands.

I hope, now we have had such an example lately set by the duke of Bridgewater, that more of the nobility will follow him; if they be not induced by the advantage the public will reap from them, let their own interest prompt them to it, and they will soon find their emolument in it.

Another circumstance in which we ought to imitate the Dutch, is the frequent erection of mills; there being scarce a business, but what is carried on by them. It is with great pleasure, that I have lately heard of one being set up in Yorkshire, for manufacturing French and Pearl-barley, and another near London, for sawing timber: the saw-mills excepted, they are mostly built of brick, like that lately erected at Brentford, the inside serves for the family to live in.

These for sawing are chiefly of timber, with only a few feet of brick-work for a foundation, and are built for about four hundred pounds, but cost more if large.

They

They would be of great use in America; it is not difficult either to have models made, or to build them from the description on copper plates; as there are books wherein almost every mill in Holland is described, and copper-plates very accurately drawn, in 2 vols. fol.

There is a work now in agitation at Rotterdam, of wharfing-in the river, from the end of the Boom-Keys to the Dock-Yard, which will complete it from one end of the city to the other; and the soil to raise the wharf, is to be taken out of the river, to deepen that. This is a proper hint of what we ought to do with the sand-banks in the Thames. It is unfortunate that the criminal partiality with which we encourage every imitation of foreign customs in general, and those of the French in particular, should be limited rather within an attachment to the ridiculous trifles, than the essentials of the country. Our time, and our treasure are both contemptibly lavished in post-haste expeditions through an unexamined province, which we perhaps, should never have resolved to cross, unless its roads had pointed to the capital, in which dress, equipage and splendor, engrossed our whole attention. One cannot but lament over this seeming inability, or disinclination to rest at different spots, in consultation with the wiser natives, upon their laws, their manners, arts and

and commerce; the state of their agriculture, the cultivation of their lands and vineyards, their artificial navigations, and their particular manufactures were frequent subjects of my enquiry. From their mulberry plantations, I was led to a sense of the obvious propriety of their being imitated in America, if not in England; whilst the uncommon convenience of water carriage there and in Holland, pointed out the necessity of encreasing our inland navigation. There a farmer carries the produce of his land, in a boat, to market, without the assistance of a horse, an animal only wanted to carry it from the land to the water-side; for most of the neighbouring villages have small canals cut from the principal one, wide enough for two boats to pass. By these means, a farmer wants fewer horses, waggons, and carts; the public roads do not cost so much repairing; and that prodigious quantity of land, solely occupied for provision for the horses, is saved to produce other corn; as there is no country in Europe where so many horses are bred, as in England, consequently a great share of the land must be occupied for procuring their food, and leave the less for its inhabitants; hence arises the dearth of most sorts of provisions.

Another great advantage would result from the convenience of travelling on these canals in boats, drawn by two or three horses; instead of paying
three-

three-pence a mile, the customary price of stage-coaches, this would not cost a penny, and one horse only would be used, instead of twenty, as frequently thirty persons travel in a barge, drawn only by two horses. Any one, after having once seen them in France, Flanders, and Holland, must greatly admire them. There one may travel twenty miles, for a shilling, and sit in the best apartment; you breakfast, dine, and drink tea in them, without once stopping, except it be to change horses; the provisions, and wine, provided in them, are very cheap and good, and you go about forty miles in twelve hours.

The barge from Bruges to Ghent, is remarkably convenient and magnificent. It is divided into several apartments, and one room in which the best company sit, is very handsomely furnished; a small one is particularly reserved for the magistrates of the country; upon deck is an awning, spread almost over half the barge, having a balustrade round it, and seats for the company to sit on, without being incommoded by the sun; you read, write, work, play at cards, or do whatever you please, without any restraint; here a great variety of genteel company is always to be met with. There certainly are many places in England, where such canals might be made, with boats on them for the convenience of travellers, and they would bring in great profit to the proprietors of the navigation.

CHAPTER XIV.

A plan for planting, at an easy expence, all the turnpike roads of England with timber-trees; for improving the roads, paying off their debts, and decreasing the tolls; and for establishing a nursery in every county, to raise seeds, and supply gentlemen with forest-trees, at a cheap rate, in order to encourage them to plant; with the present prices of plants of timber-trees, in nurseries.

THE various and almost innumerable uses for which timber is wanted, fully evince the necessity there is in every kingdom, that no pains, no costs, ought to be spared, for keeping up a perpetual successive stock, to supply the wants of its inhabitants; that it is one of the fundamental riches of a kingdom, no person can dispute.

That in this kingdom, in particular, we have not been so fond of making new plantations of trees, as of cutting down the old ones, is too evident; though with pleasure it must be allowed, that this present age has afforded many patriots (for a great planter may be justly called a great patriot,) whose
names

names posterity will revere, for the great plantations they have made. As his present majesty, the late duke of Cumberland, the duke of Northumberland, with many others of the nobility, have already afforded the example, it is to be hoped, that it will descend to every one, who is the proprietor of any land, and soon give the Society for the encouragement of arts, an opportunity of encreasing their honorary medals to the planters.

It is extraordinary that the legislature has never turned its attention to planting the public roads, which are so much land lying useless, and might be converted into a great national advantage. With what pleasure do we travel in France, Brabant, &c. through noble avenues of trees, from one city to another, and where the roads are broad enough, even with several rows on each side; how few of these do we see in England.

The great objection most persons conceive against planting the roads, is, that it prevents their drying: but were they once to see the roads abroad, that objection would not appear even plausible.

There is also one very inducing reason for planting the roads, arising from the conviction that very little additional ground would be used for that purpose, as the trees would draw their nourishment almost entirely from the earth, which is
under

under the roads, and do but very little damage to the adjoining crops; on the contrary, on heaths and commons, the shade of the trees would be a great advantage to the cattle, in defending them from the meridian sun, in Summer, and the piercing winds, in Winter; in covering a barren waste, where, perhaps, not a single tree is to be seen, with beautiful plantations, and making, from one end of the country to the other, the appearance of a well cultivated field; there is no soil, on which some sort of tree will not grow; and if it were possible to know the total amount of the immense sums sent out of the nation, for timber, within this century, (exclusive of America, where we barter for our manufactories,) I am afraid it would be found to be some millions, and fully prove the great necessity there is, of endeavouring to put some stop to it, by supplying ourselves at home.

As the expence of raising a nursery of forest-trees is generally imagined to be much greater than it really is, I beg leave to avail myself of what I have the vanity to call some years experience of this matter, and give an exact estimate of the expence at which it may be done. Could I flatter myself with the hopes of inducing many to make the experiment, I would advise them to try it first in a small way, and they will soon after, I am confident, increase their plantations: particularly let gentlemen

men of small landed estates consider, how trifling the fortunes of their children must be, if they chance to have many, when their estate shall happen to be divided into several shares ; whereas if they had but appropriated some few acres of ground to the cultivation of timber, which is, perhaps, the only way they have of increasing their estates, (for it is almost impossible for a gentleman to farm with much profit) they might have given to many younger children, fortunes almost equal to those of the eldest.

I believe that one of the principal reasons, why few persons plant, springs from a fearful conjecture that their days will have been passed, before the forest can have risen. But let not the parent harbour so selfish an idea ; it should be his delight, to look forward to the advantage which his children would receive from the timber which he planted ; contented if it flourished every year beneath his inspection ; surely there is much more pleasure in planting of trees, than in cutting of them down. View but the place where a fine tree stands, what an emblem does it afford of present beauty and of future use ; examine the spot, after the noble ornament shall have been felled, and see how desolate it will appear.

Let fathers, possessed of a small landed estate, consider, that if, by any mismanagement, they
spend

spend more than their yearly income, it must be with the utmost difficulty that they can hope ever to fetch it up; and that a mortgage, which is then the certain consequence, must, if it be continued, destroy every estate, because at least one per cent. more is paid interest, than the same money laid out in land will produce; whereas, if a supply of timber be on the estate, it is always ready on an emergency; and if it be properly divided, so as to have a certain quantity to cut, in a certain period of years, when by accident there may arise an obligation to mortgage for childrens fortunes, or any other particular occasion, the future time of clearing the estate may be easily ascertained. How many estates do we hear of, which have been absolutely saved from destruction, by a prudent forecast, in having a plentiful stock of timber trees? Because oak is one of the most valuable woods, persons inclined to plant are erroneously not contented to plant any other sort; again, from the length of time in which oak is coming to perfection, the discouragement proves so great, as to hinder many from planting any at all. To obviate that objection; let them mix various sorts together, and by planting some of the aquatic, and quick-growing trees, such as willows, poplars, limes, elms, &c. they will soon reap the profit of their labours, and the oaks will remain for the succeeding

ceeding generation. The amazing profit of an acre of ground, planted with the Norfolk or Dutch willow, may be particularly seen in the 6th vol. of the *Museum Rusticum*, page 78, where it is fully proved, that in the 5th year after planting it will produce 37 pounds, in the 10th, 187 pounds, and in about the 30th, 500 pounds, in 30 years, 724*l.* from a single acre of ground, and perhaps such as will not produce corn: but such a produce can scarcely be found even from good corn-land. If an acre of ground produce 3 pounds clear profit from corn, (and very little corn suffices) put it out yearly at compound interest, and in thirty years it will produce but about 200 pounds. There are also many other kinds of quick growing trees, that will yield nearly an equal profit with these if tried; the Italian poplar will (I believe) yield more. How beautiful does an estate appear, where at a small distance from the hedge lofty rows of trees, or clumps in the corners of four fields are growing; if the inclosures be not very small, but little damage is done to the ground, by such plantations.

Perhaps, there is not a better method of inducing youth to have an early inclination for planting, than for fathers, who have a landed estate, to persuade those children, who are to inherit it, as soon as they come to years of discretion, to make

a small nursery, and to let them have the management of it themselves: they will then see the trees yearly thriving under their hands; as an encouragement to them, they should, when the trees are at a fit growth to plant out, let them have the value of them for their pocket-money. This will, in their tender years, fix so strong an idea of the value, and the great consequence of planting, as will never be eradicated afterwards; and many youths, of the age of twenty-five, having planted quick-growing trees, may see the industry of their juvenile years amply rewarded at that early age, a time when most young men begin to know the value of money.

The following estimate will serve for almost every sort of timber-trees, such as oaks, ashes, elms, firs, beeches, pines, chestnuts, larches, limes, sycamores, planes, Virginian cedars, walnuts, hornbeams and poplars: at least, there can be only a little difference in the first expence of the seeds, or cuttings; perhaps some forward plants may bear transplanting a year sooner, some, from a bad season, not bear it till a year later.

The

Expence of raising twenty thousand trees.

First year.

	<i>l.</i>	<i>s.</i>	<i>d.</i>
Digging twenty rods of ground, - -	0	5	0
Rent 5 <i>s.</i> Seed 1 <i>l.</i> - - - - -	1	5	0
Weeding them, and sifting earth, or ashes over them, before Winter, -	0	10	0
	£2	0	0

Second year.

Stirring the beds with a hoe, - - -	0	3	0
Sifting earth over them, - - - -	0	2	0
Rent 5 <i>s.</i> Weeding 5 <i>s.</i> - - - - -	0	10	0
Hoeing, and sifting earth, or ashes over them, before Winter, - - - -	0	5	0
	£1	0	0

Third year.

Digging 33 rods of ground, - - -	0	8	3
Planting 22000 on beds, 4 feet wide, 18 inches interval, and at 6 inches distance, 1	2	0	
Rent 7 <i>s.</i> Weeding 8 <i>s.</i> 3 <i>d.</i> - - - -	0	15	3
Hoeing, and sifting earth, or ashes over them, before Winter, - - - -	0	8	6
	£2	14	0

Fourth year.

	<i>l.</i>	<i>s.</i>	<i>d.</i>
Rent 7 <i>s.</i> Weeding 8 <i>s.</i> 3 <i>d.</i> - - -	0	15	3
Earthing before Winter, - - -	0	8	3
	£	1	3 6

Fifth year.

Ditto, - - - - -	£	1	3 6
------------------	---	---	-----

Sixth year.

Digging an acre 2 <i>l.</i> Rent 2 <i>l.</i> - - -	4	0	0
Planting, at 2 <i>s.</i> per thousand, - - -	2	4	0
Hoeing twice, 10 <i>s.</i> Spreading ashes over them, before Winter, 10 <i>s.</i> - - -	1	0	0
	£	7	4 0

Seventh year.

Digging betwixt the rows, in Spring, -	1	0	0
Rent 2 <i>l.</i> Hoeing four times 1 <i>l.</i> - -	3	0	0
Spreading ashes over them, before Winter, 0	10	0	
	£	4	10 0

Total expence, £ 19 15 0

As

As an acre of ground contains 21780 trees, when planted in rows, two feet asunder, and each tree one foot in the row, which is the usual distance nurserymen allow, I have, making great allowance for accidents, supposed that twenty thousand good trees may be raised from each acre, which will cost only 20s. per thousand raising: but as several gentlemen may not choose to wait so long, nor to have that trouble, but had rather buy the trees from a nurseryman; the prices are also added at which they may be purchased in large quantities, at some distance from London; but as the price of labour and provisions is encreasing, it must be supposed that in a very few years, even the price of these will be raised by the nurserymen, ten per cent.

A CATALOGUE of the sizes and prices of timber-trees, in nurseries.

	feet high.	Sh. per hu.
English elms 1 year old, layers	2	6
Ditto 3 years old transplanted	4	20
Ditto	8	40
Ditto	10	50
English elms, grafted on the broad leaved wych-elm	2	15
Ditto	4	20
Ditto	6	30
Ditto	8	40
Wych-elms, 1 year old seedlings	6 inches	1
Ditto 2 years old	1 foot	2
Ditto transplanted	2	5
Ditto	6	15
Ditto	8	30
Beeches one year seedlings	6 inches	1
Ditto transplanted	8	2
Ditto	1 foot	5
Ditto	2	10
Ditto	4	20
Hornbeams, one year seedlings,	4 inches	1
Ditto transplanted	18	6
		Horn-

	feet high.	Sh. per hu.
Hornbeams transplanted - -	2	8
Ditto - - -	4	15
Larches, one year seedlings	2 inches	3
Ditto transplanted -	18	15
Ditto - - -	3 feet	25
Ditto - - -	4	40
Scotch firs, one year seedlings	2 inches	1
Ditto transplanted - - -	6	3
Ditto - - -	1 foot	7
Spruce firs, one year seedlings	2 inches	1s. 6d.
Ditto transplanted - - -	6	2
Ditto - - -	1 foot	10
Ditto - - -	2	20
Silver firs, one year seedlings	2 inches	3
Ditto transplanted - - -	18	15
Pinasters transplanted -	4	10
Ditto - - -	18	50
Ditto - - -	2 feet	75
Cluster pines transplanted -	18	50
Ditto - - -	3	75
Lord Weymouth's pines -	1 foot	75
Ditto - - -	2	100
Ditto - - -	3	150
Ditto - - -	4	200
Cedars of Lebanon -	18 inches	500

M 4

Vir-

		feet high.	Sh. per hu
Virginian red cedars	-	6 inches	50
Ditto	-	1 foot	100
Ditto	-	4	200
Spanish chesnuts, one year			
seedlings	-	9 inches	4
Ditto transplanted	-	1 foot	6
Ditto	-	2	10
Ditto	-	4	20
Ditto	-	8	40
Horfe-chesnuts, about 1s. less			
per hundred			
Walnuts transplanted	-	2	10
Ditto	-	3	15
Ditto	-	6	30
Ditto	-	8	40
Limes, two year seedlings	-	1	5
Ditto transplanted	-	2	15
Ditto	-	4	25
Ditto	-	8	40
Oaks two year seedlings	-	1	1s. 6d.
Ditto transplanted	-	1	3
Ditto	-	3	10
Ditto	-	6	30
White Poplars	-	1	5
Ditto	-	3	10
Ditto	-	8	20
Ashs, one year seedlings	-	4 inches	1
			Ashs,

	feet high.	Sh. per hu.
Ashs, two years transplanted	1 foot	3
Ditto - - - - -	2	4
Ditto - - - - -	3	7
Sycamores transplanted	2	7
Ditto - - - - -	3	10
Ditto striped - - - - -	2	30
Ditto - - - - -	4	50
Oriental and Occidental Planes	2	25
Ditto - - - - -	4	30
Ditto - - - - -	6	50
Yews, two year seedlings	4 inches	5
Ditto transplanted	1 foot	15
Ditto - - - - -	18 inches	30
Ditto - - - - -	2 feet	50
Ditto - - - - -	3	75
Green hollies, two year seedlings	4 inches	1
Ditto - - - - -	6	2
Italian, or Lombardy poplars	5	42

By the above catalogue, is seen how much may be saved by raising the trees one's self; I will venture to affirm, that at the end of the seventh year, if properly managed, and taking one sort with another, they will be worth six-pence each; whereas to buy them at half that price, the 20000 will cost 250*l.* instead of 19*l.* 15*s.* What an encouragement

couragement is this for raising trees one's self! nor can it be supposed, that many gentlemen will purchase quantities from nurserymen, to make plantations for timber.

Were the legislature to adopt a plan, for planting the public roads, a gardener in every county, should be established near each principal town, to raise the trees, which should be under his care till the 6th year, where they might want to be planted out at greater distances; and then, to save the carriage, which would cost almost as much as the trees are worth, they should remain in the nursery, till large enough to plant out on the roads; a proper quantity of ground should be provided near each toll-gate, on which ground the number wanted, betwixt one gate and the other, should be planted; on the sides of most roads there will be found sufficient waste ground for that purpose; they should then be under the inspection of each toll-gatherer, till planted out where they were to remain. Being thus conveyed, but to a trifling distance, a great expence of carriage would be saved; many trees would be preserved from dying, by being so soon replanted, and where the roads may prove very wide, especially on many commons, they might be planted in clumps, in each of which a proper number should be left for timber, which as it may encrease
will

will prove a farther additional ornament to the roads, and afterwards, a greater value to each county. A specimen of this method of planting in clumps, on commons, may be seen in those beautiful plantations of the duke of Newcastle, at Claremont, in Surry, which reflect equal honour on his grace's taste and judgment.

Having now particularized the expence of raising the different kind of trees proper for this purpose, or for gentlemen to plant ; I will next shew the expence of raising a sufficient quantity for the public roads. Probably all the turnpike-roads in England, may extend to about five thousand miles in length ; at least, let us suppose them to be of that length, in order to fix my calculation : now, allowing twenty feet distance from tree to tree, a mile planted with a row on each side, will contain 528 trees ; but as some towns will hinder the plantation from being continued regularly, we will grant that each mile, one with another, requires 500 trees, if planted with two rows ; the 5000 miles will then require two millions, five hundred thousand trees ; but as near all towns, especially the county and market-towns, it would be necessary, for the greater ornament, and use of the inhabitants, to plant more than two rows for public walks ; and also on many heaths and commons, it would be better to plant in clumps,
as

as then those trees on the north and east sides, would defend the others; I would allow double the number, and raise in every nursery sufficient to plant out one hundred and twenty-five thousand in each county, one with another, which through the whole kingdom, will amount to five millions of trees.

As Yorkshire is so large, it might be found necessary to have two or three nurseries; and the small counties, such as Rutland, Bedfordshire, and some others, should supply some of the neighbouring ones with trees, to make the labour of each gardener as equal as possible, as they would not want the 125000 themselves.

Though the expence of raising 125000 trees, to five years old, where a person is not employed solely for that purpose, is but about 50*l.* yet, as a gardener must here be employed on purpose, I must calculate the expence of a man and ground, as if only for that use; as he must be one brought up in a nursery, wages must be given accordingly.

It will, likewise, be necessary, that there be an inspector over him, to see that he does not neglect his business; as the clergy, in general, have some skill in gardening, I should propose, as a proper person for that purpose, a neighbouring curate, who might have a compliment of ten pounds per annum given him, or more, if that were not
thought

thought sufficient. The yearly expence will then be as follows;

	<i>l.</i>	<i>s.</i>	<i>d.</i>
Gardener's wages, - - - - -	20	0	0
Rent of one acre and an half of ground, - - - - -	3	0	0
A house, feeds, taxes, and tools one year with another - - - - -	7	0	0
The curate, - - - - -	10	0	0
	£ 40	0	0

As this number of trees would be only for the roads, I should propose the adding of two or three acres more of ground, and then there would be an opportunity of raising some trees for sale, which should be sold at the same price as one nurseryman charges to another, as an encouragement to the planters. As good feeds are greatly wanted in the country, for kitchen-gardens, and grass feeds for the farmers, and as large sums of money are sent out of the nation for them, a part of this land should be employed for the purpose of raising of them. It may be urged, that this would hurt the feedsmen and nurserymen; to obviate such objections, let those who are inclined to make them peruse my first chapter, on the raising of feeds, and they

they will find it of great service to the nation in general, particularly to the country, who with difficulty procure good seeds; I flatter myself that it is also useful to the feedsmen, as they would be readily furnished with almost every sort they have occasion for; all the seeds raised here, those wanted for country gardeners and farmers excepted, (as none should be sold by retail) should be sent to the Middlesex nursery, to be ready for the London feedsmen, who purchase great quantities to send abroad.

Thus it has been proved by the above calculation, that for about two hundred pounds expended in five years, every county could raise 125000 trees; and if the other scheme be adapted, of raising some seeds and trees for sale, a profit will arise from them, to defray the expence of planting the trees out where they are to remain. After the first three years, if the gardener prove industrious and careful in his business, an encrease of five pounds per annum in his wages should be allowed him, till the whole amounted to forty or fifty pounds, as twenty pounds a year would not be sufficient recompence for his care in such an undertaking: whensoever the profits would allow it, each nursery should be farther enlarged, so as to be a pattern and an encouragement to the gentleman planter, the gardener, and the farmer. First, a convenient spot

spot of ground should be fixed on for the Middlesex nursery, (with which all the rest should keep a regular correspondence) where a proper house, with a convenient room, for keeping models of all the newly-invented instruments of husbandry, and another for containing the seeds sent from the county nursery should be erected; for the building of which each county should contribute a share; afterwards more land may be employed, and a better house erected for each county nurseryman, where every new useful tree or plant from the different parts of the globe, the wood of which we import from foreigners, for the various purposes in our manufactures, buildings and furniture should be raised; as many of them require shelter in their infancy, before they be inured to the climate, (though we have the experience of their flourishing well after,) a green-house would be wanted for that purpose.

Any new method of different culture made use of in the art of gardening, (as great improvements are made every year, and it often is a long time before they are publickly known) should here be practised, and if found more beneficial than the old methods, should be immediately communicated to the neighbouring gardeners: nor ought a small hot-house to be omitted, as no garden is now looked upon as complete without one; as a proof of
the

the gardener's skill, he should, at the public county-meetings, such as the assizes, races, &c. send some of his productions to the judges, sheriff, stewards of the races, &c. which would cause a spirit of emulation among the gardeners in the county, who would strive to equal him in skill and attention. But perhaps the greatest public utility of all, would be to endeavour to eradicate out of the farmers minds, some of their absurd methods of farming; for when they have absolute proofs before their eyes, of the greater utility of these new methods, they might have some weight with them. A part, therefore, of this nursery should be appropriated to the making of practical experiments, towards the improvement of agriculture.

Models also of any newly-invented implements of husbandry, should be sent to each county nursery; and, on the other hand, the nurseryman should give immediate notice to the Middlesex nursery of the appearance in the country of any new improvement. By these means, every improvement in the cultivating of land, and every newly-invented useful instrument, would be immediately spread through the whole country, to the great advantage, not only of many individuals, but also of the kingdom in general.

In choosing the sorts of trees to be planted, half of them should be oaks, as they will grow in almost

most every soil, and as that timber is so much wanted for shipping, the principal defence of this island against our enemies, the others should be of such particular sorts as are most wanted in each county, and will suit the soil; and especially the ash, elms, &c. these are wanted by the farmer, for the several purposes of agriculture, and must, by no means, be omitted; some of the aquatic kinds, as poplars, willows, &c. are also absolutely necessary.

The advantage of mixing these quick-growing sorts with the others, would be, their soon bringing in some profits, for the service of the roads, and for reimbursing the expences; when cut down, they would give room for the oaks, and the other trees to thrive.

This method is practised in the entrance to Bruges, from Ghent, where the different verdure of elms and oaks, alternately planted, makes an agreeable variety in that noble avenue. The distance is there about 12 feet from the elm to the oak.

Where I have seen these plantations in Flanders, on the public roads, at every thirty yards, a small trench has been digged about two feet long, and one deep, across the roads, to guard the trees from the wheels of carriages; some few thorns were fastened round each tree, to prevent the cattle

N

from

from barking them, when young; and this fencing has proved sufficient to guard them from accidents. When planted in clumps a trench must be digged round each clump, and the earth thrown up, to form a bank.

It is there also, a general rule, previous to the planting, to cut off the heads of all the oaks, ash, elms, and such other trees as are not evergreens; thus a new plantation appears like so many stakes set in the ground, instead of trees; of a tree fifteen feet high, about five feet are cut off, nor can they form, so cut, till three or four years shall have elapsed, a strong leading branch, to have a head raised from it; the only advantage to be guessed at, arising from this method is, that, in places much exposed to winds, it saves the expence of staking.

After the first planting of those roads, (which are already turnpike-roads) the nurseryman need not raise so many trees, and he would then have leisure to attend to his other business: however, he must still continue to raise some, for making good the deficiencies, which would naturally happen, amongst those already planted, or for planting more in any places, as the commissioners of the roads should think proper; or, for the planting of new roads, as the method of making turnpike-roads is prevailing over all the kingdom; I should,

should also hope, that in making all new roads, they, for the future, would pay a proper regard to making them as straight as possible, and not let our public roads, from their numerous turnings, meet with a just reproach from foreigners; some likewise should be planted for sale; nor should trees be refused for planting any roads from one village to another, though they were not turnpike, if the parish would be at the expence of planting them, and be under the same rules and regulations as the turnpike-roads. Plantations on the banks of the navigable canals and rivers should on no account be omitted, there the aquatic kinds will be more particularly suitable, unless rendered, in some places, inadmissible by the gardens of gentlemen, or by buildings.

When the trees shall have arrived at such perfection, as to be cut down, which will be at different ages, according to their respective sorts, (for instance, some few of the willows, and Italian poplars, even at about the fifth year,) the commissioners of each road, at their customary meetings, must then give proper orders for that purpose, and receive the profits which should be employed towards repairing the roads; in forty or fifty years, after a considerable fall of the quick-growing trees there is no doubt but there will arise a sufficient sum, for paying off the debts, and decreasing the

tolls, and probably a surplus, to be applied for the use of the government, or if judged more proper, the tolls entirely to be taken away, as the profits from the trees, with fresh ones being constantly planted, would certainly be sufficient for the expences of keeping most roads in order. Care also should be taken to make lopping for faggots at the end of every third or fourth year; since too great an exuberance of branches from the trees, might prevent the road from drying: the oaks will be so long before they come to perfection, that it is almost unnecessary to treat of them at present; however, I cannot omit mentioning, that when they are at full growth, they will be a happy resource within ourselves, for the reparation of our navy, and against a future war. At the eve of such an event, it would be no small credit to each particular county, if, by cutting down some of its timber, it were to build a ship, which might assume its name. I should hope that there would then be navigable canals, that the transportation of the timber from the most inland counties, to the several dock-yards, might be quickly facilitated.

The above I only offer as the outlines, on which a plan may be formed, and to shew the ease with which it may be put into execution, and the great benefit the nation would receive from it: nor can

I sup-

I suppose, but that many things will there be found, to require a different regulation from what is here proposed; it were an unpardonable vanity in me to think that this plan would not want several amendments: yet as these hints may in some measure form a ground-work, I hope to live to see a similar, but a more improved plan put into execution, for the credit and advantage of the nation.

Having, (since I wrote the above,) perused a scheme, recommended by Mr. Harte, I cannot resist the pleasure of transcribing sentiments so exactly coinciding with my own.

“ It is much to be lamented, that one good
 “ nurseryman, or seedsman, (I wish I could find a
 “ more proper word, whereby to express my idea)
 “ is not encouraged to settle in each county of
 “ this kingdom, that lies above sixty or eighty
 “ miles from London. The country gentry, and
 “ their tenants, would soon feel the advantage of
 “ such an establishment; and each nurseryman,
 “ of this kind, ought to have an honorary stipend
 “ from the government. It is not our intention
 “ that he should employ himself (that being more
 “ properly the gardener's business) in raising or-
 “ namental exotic trees, choice fruits, flowers,
 “ and flowering shrubs; but in producing such
 “ trees, fruits, and plants, as are only profitable

“ and useful in rural œconomies. As timber-
 “ trees of all sorts, foreign and domestic, wood
 “ for joiners, cabinet-makers, &c. apple-trees for
 “ cyder, common eating fruits for markets, sets
 “ for live hedges, &c. and that he be careful to
 “ cultivate all sorts of plants, which afford whole-
 “ some food for cattle ; that every diligent culti-
 “ vator in the neighbourhood, may know where
 “ to apply for a stock of young trees, sets, or
 “ seeds, near his own home, and upon easy terms.
 “ Such provincial nursermen should be under the
 “ inspection of the national directors of husbandry,
 “ and should be nominated and removed by
 “ them.”

The Italian, or Lombardy poplar, is at present
 a tree but little known here, though very advan-
 tageous to plant ; scarcely any sort of tree equals
 it in quickness of growth ; its manner of vegeta-
 tion, and its foliage, are very beautiful. A fine
 plantation of them is in the church-yard of St.
 Marguerite, at St. Omer, made two years ago,
 and which were then from ten to twelve feet high :
 they take very freely from cuttings, therefore a
 gentleman may soon raise a large quantity, by
 having a few trees, and cutting them down for
 stools.

CHAPTER XV.

Several useful Tables for Planters : an account of the number of plants, or trees, which may be planted on an acre of land, at different distances ; a calculation of the value of the crops.

In an acre are

4 Roods, each rood 40 rods, poles or perches.

160 Rods, 16 feet and a half each.

4840 Square yards, 9 feet each.

43560 Square feet, 144 inches each.

174240 Squares of 6 inches each, 36 inches each.

6272640 Inches, or squares, of 1 inch each.

A TABLE to shew how many plants may be raised on a rod of land, at different distances.

In a rod are $272\frac{1}{4}$ square feet, or 39204 square inches.

A rod will contain

Trees or plants.	Number of inches asunder.	Square inches to each.
2450 and 4 inches over	4 by 4	16
1960	5 by 4	20
1633 and 12 over	6 by 4	24
1089	6 by 6	36
816 and 36 over	8 by 6	48
612 and 36	8 by 8	64
490 and 4	10 by 8	80
392 and 4	10 by 10	100
272 and 36	12 by 12	144
261 and 54	15 by 10	150
	N 4	An

An Acre will contain

Trees or plants. Number of feet asunder. Square feet to each.

108 and 360 feet over, at 20 feet asunder, or 400

160 - - - - - $16\frac{1}{2}$ - - - - - $272\frac{1}{4}$

134 and 144 feet over - 18 - - - - - 324

302 and 72 - - - - - 12 - - - - - 144

435 and 60 - - - - - 10 - - - - - 100

680 and 40 - - - - - 8 - - - - - 64

888 and 48 - - - - - 7 - - - - - 49

1089 - - - - - 8 by 5 - - - - - 40

1210 - - - - - 6 - - - - - 36

1361 and 8 - - - - - 8 by 4 - - - - - 32

1452 - - - - - 6 by 5 - - - - - 30

1555 and 20 - - - - - 7 by 4 - - - - - 28

1815 - - - - - 6 by 4 - - - - - 24

2178 - - - - - 5 by 4 - - - - - 20

2722 and 8 - - - - - 4 by 4 - - - - - 16

2904 - - - - - 5 by 3 - - - - - 15

3630 - - - - - 4 by 3 - - - - - 12

4840 - - - - - 3 by 3 - - - - - 9

5445 - - - - - 4 by 2 - - - - - 8

7260 - - - - - 3 by 2 - - - - - 6

8712 - - - - - $2\frac{1}{2}$ by 2 - - - - - 5

10890 - - - - - 2 by 2 - - - - - 4

19305 - - - - - $1\frac{1}{2}$ by $1\frac{1}{2}$ - - - - - $2\frac{1}{4}$

21780 - - - - - 2 by 1 - - - - - 2

43560 - - - - - 1 - - - - - 1

A TABLE

A TABLE for the more readily calculating the value of several crops, on an acre of land.

			l.	s.	6d.
43560 plants,	{ (a plant to each foot)	1d. -	181	10	0
		$\frac{1}{2}$ -	90	15	0
		$\frac{1}{4}$ -	45	7	6
19360 plants, at	-	-	-	-	-
9680	-	-	-	-	-
4840 (a plant to each yard)	1d.	-	-	-	-
2420	-	-	-	-	-
1210	-	-	-	-	-
605	-	-	-	-	-
		$\frac{1}{4}$ each			
		$\frac{1}{2}$			
		2d.			
		4d.			
		8d.			
7000 plants, at	2d. each,	-	62	6	8
5200 ditto, at	2d.	-	43	6	8
2200 ditto, at	2d.	-	18	6	8
9980 plants	-	-	40	6	8
6970	-	-	31	0	10
6533	-	-	27	4	6
5460	-	-	22	15	0
5445	at 1d. each.	-	22	13	9
4356	-	-	18	3	0
3630	-	-	15	2	6
1000	-	-	4	3	4
160	-	-	0	13	4
15000 plants	-	-	31	5	0
7000	-	-	15	11	8
6534	at 1d. $\frac{1}{2}$ each.	-	13	12	3
6660	-	-	13	17	8
5000	-	-	10	8	4

N. B. Several of the odd numbers particularly refer to the number of the plants raised on an acre, according to the distances recommended in this book.

CHAPTER XVI.

Various methods of feeding and fattening of fowls, geese, ducks, and turkeys.

SUCH is the extravagant price at which poultry is sold (and particularly in London, and its neighbourhood) that the affluent only can afford to buy them; the society for the encouragement of arts, &c. has, therefore, very judiciously offered a gold medal for the best account of the most profitable method of rearing fowls, and fattening them for the market; as few persons are acquainted with any other method than barley-meal, mixed with milk or water, to fatten turkeys and fowls with, and oats for ducks and geese; I shall mention the methods I had practised for my own use, and propose several others, that in all probability will answer very well.

The expence of fattening with barley-meal and oats, costs for a fowl, or duck, from six-pence to nine-pence, and for a goose, or turkey, from twelve-pence to eighteen-pence, according to the size; therefore, could any cheaper food be substituted

tuted instead of these, so as to decrease the expence a third, or an half, this must inevitably cause a great alteration in the price of them, at the poulterers, and enable many persons to become purchasers, whose fortune will not permit them to buy them, at the present high prices.

The endeavouring to reduce the price of poultry, is also another very material article, in regard to the health of many persons, who then need not eat so much butcher's meat, which is the foundation of more disorders, than people in general have any idea of, and no nation either protestant, or catholic, eat so much of it as the English; and hence arises the great price of poultry.

I shall first mention the method I had practised myself, without paying a regard to frugality, in the expence of it, as it did not exceed the usual method, above two-pence for a fowl, or duck, or four-pence for a goose; and as to the turkeys, if the walnuts were bought by the bushel, and it was not a dear year for them, it certainly was cheaper than barley-meal.

Boil some rice in water gently, till it be plumped up, and very tender, add about two ounces of very brown sugar to every pound of rice, just before it be boiled enough; let the fowls be fed with it three times every day: in ten or twelve days they will be fat, but if they were in good con-

condition, when put up to fatten, they will be ready in seven or eight days; they must, by no means, have any water given them: in Summer, too much rice must not be boiled together, because of its soon turning sour; nor is milk so good, for that reason, as water only; for, in boiling, the milk is very liable to make the rice burn to the pot.

Frequently offal-rice is to be bought very cheap of the grocers, in the city, and then this is not a dear method, (especially now,) as the duty is taken off.

The rice causes the flesh to be remarkably white, and to have a fine delicate flavour.

To fatten ducks and geese.

Mix some ground malt with warm water, but rather scum-milk, and feed your geese and ducks with it, three times every day, at the same time, letting them have plenty of clean water, as it causes them to drink freely; two gallons of malt are, in general, more than enough for a young goose, and less than one is sufficient for a duck; it has an amazing quality in fattening them when young, and causes the flesh to be very delicate; when old, they readily fatten with almost any food; but for the flavour it gives the flesh, I would always prefer malt, before any thing else: before they have been
put

put up to fatten, I have given both ducks and geese plenty of lettuces, which they are exceedingly fond of; they are a very cheap food for them, as they need then have but little corn.

To fatten turkeys.

The method here proposed, may appear to some persons very odd, and scarcely to be credited; but having frequently practised it, I can ascertain the truth of it.

Pitch on such turkeys as are in a tolerable good condition; to prepare them for being killed about the sixteenth day, give them every morning about the time when they have just eaten their corn, a walnut, the bitter husk of which only shall have been first taken off, (for the shell must not be cracked, least the rough edges tear their throats;) pick out the walnuts according to the size of the turkey; on the second morning give them two; on the third, three; on the fourth, four; on the fifth, five; on the sixth, six; on the seventh, seven; and continue to give them seven for two days; then decrease the quantity, and give them on the ninth day only six; on the tenth, five; on the eleventh, four; on the twelfth, three; on the thirteenth, two; and on the fourteenth, one; then put them up, and after making them fast for one day, kill them.

They

They are to continue in the yard, with the other fowls, all this time; but about the fourth or fifth day, they will have little relish for any corn, but rather choose to retire into some warm corner, and there sit down; therefore there should be a shed for that purpose, open to the south.

This method takes exactly fifty-six walnuts for each turkey, and I have scarce ever found it necessary to have it altered; but their being continued to have seven walnuts for two, three, or four days, makes no great difference, and a little experience will soon teach a person that part of the practice; the reason of not giving them more at first, is to use the stomach of the fowl to them, by degrees; if the walnuts be rubbed with a bit of butter, or hogs-lard, they slip down the easier.

The time I have had turkeys fed in this manner, has been from October to January, and they have always succeeded very well; the effect the walnuts caused on the flesh was, to make it of a fine silver white colour, particularly the fat, and of a remarkable delicate flavour, quite superior to its usual taste, when fed with any other kind of food.

For the turkey pouts, the rice must certainly do very well, as experienced in the case of fowls, the walnuts not being then ripe enough.

Were

Were the attempt made to fatten fowls with walnuts, the shells should be cracked, and only the kernels given to them. On this article it may not be improper to observe, that an acquaintance of mine rendered his young turkeys more vigorous, and hardy, by continuing to dip them in cold water, from the first to the tenth day, beyond the time of their having been hatched, using on the second day only the previous caution of giving to each a pepper-corn. If, also, after they had grown up to nearly their full size, they began, from the peculiar tenderness of their nature, to droop and sicken, he poured down their throats one drop (or two) of brandy; they first became intoxicated, staggered about the poultry yard, then fell down, and continuing for some time motionless and asleep, at length rose up entirely recovered. My friend observed to me, that, frequently when the turkeys drooped, the quills of some of the feathers growing at the rump seemed filled with blood; and that these feathers being plucked out, the birds generally became well. I do not commend his frugality so much as the rich flavour of one turkey which he had fattened twice every day during a fortnight with grapes, steeped in dregs of mountain or any other wine, that they might approach nearer in nature to those of Burgundy. It is remarkable that the grape of this province is the food of the ortolan, which
comes

comes lean into the vineyard, but soon growing fat, drunk, and unwieldy, is beaten down from the branches of the tree by the peasants.

In Flanders, buck-wheat is the common food for most sorts of poultry; and in America, maize or Indian corn. In France I saw a person who generally fed them on offal-wheat; for any person who might have an inclination to attempt gaining the gold medal the next year, I shall mention many more sorts of food, which would certainly come very cheap, and prove worth trying; besides wheat, barley, malt, oats, barley-meal, malt-dust, rice, and walnuts, there are buck-wheat, Indian-corn, hemp-feed, rape-cakes, potatoes, boiled beans, carrots, parsnips, and, (what I should apprehend the best of all) horse-chestnuts; these last should be either steeped in boiling water, or boiled a little, to take off the bitterness; to tempt fowls to eat any of these other kinds of food, at first, a little barley-meal should be mixed with them, and then that, by degrees, should be left off: the dregs also of strong beer, are very good to put into their meat in cold weather.

The fattening coops should always be set in a very airy dry place, and cleaned every day, else the smell of their dung will frequently take away their appetite; whenever that shall have been the case, they should be taken out of the coops, and
suffered

suffered to run about the poultry yard, to recover their health, before they are put up again : If the coops be kept in a dark place, or covered with mats, or cloths, to exclude the light, the fowls will the sooner fatten, but care must be taken, that there be a free circulation of air.

A very sensible writer in the Museum Rusticum, mentions the method of giving pigs, when first put up to fatten, some antimony, to clear their bodies, and increase their appetite ; if, on the same principles, a little were given to fowls, the first two or three days after they are put up to fatten, it might not be amiss, but of this I have never made any trial.

CHAPTER XVII.

Methods for preserving orange and lemon-trees, and other curious exotics, in the Winter, when planted in the ground, without tubs, and for keeping frost out of green-houses, where there are no flues.

THE orange and lemon-trees are so justly admired by every lover of gardening, for the great variety they afford, by the fine verdure of their leaves, the fragrancy of their flowers, and the beauty of the fruit, that it seems extraordinary that there have not been some good methods introduced among the lovers of gardening, to have more of these beautiful trees, in their most natural manner of growing, the open ground; then one may expect to see the trees in perfection, their leaves of a lively dark green, full of blossoms, and with plenty of fine large fruit on them; whereas, in most of the green houses at present in England, many of the trees are of a pale disagreeable green, inclining to yellow, with very little fruit on them, and that small; the gardeners, in general,

general, by way of excuse, say, that the trees are made tender, by being in the green-house, and that the sun, on their coming into the open air, instantly changes their colour, but as they are natives of so much warmer a climate, it is not to be supposed, but that they are able to bear even the meridian heat of the sun in this, if in a healthy state.

If that were really the case, why do not many other green-house plants, natives of the same climate, lose their verdure also, which but seldom happens? I attribute it therefore to quite a different cause; if the leaves were carefully to be examined by a good microscope, on their first changing colour, it would be found that some very small insects, who draw their nourishment from the sap, were the reason of it; and it is an universal rule, that all trees which are not in a very healthy state, are the first attacked by insects; therefore, keeping the trees in full vigour and health, must be one of the best preservatives; as trees in tubs have but a small quantity of earth, to draw their nourishment from, it requires that they should be frequently replenished with fresh, and that often stirred up, to be kept light, (especially when the least mouldiness appears on it) to attract the nitrous vapours, which float in the atmosphere, from which all vegetables draw so much of their nourishment;

O 2

richment; but in most green-houses, the earth is excessive hard, owing to the water being poured so hastily upon it, and very seldom stirred up, or fresh added; and this is one of the principal reasons, of the bad state of the plants, and it is then that the insects attack them.

This inconvenience from the water may be easily prevented, by having a few oyster-shells laid on the top of the earth, as the water being gently poured on these, is prevented from faddening the mould so much, as it otherwise would; nor should the whole quantity of water be poured on at once, which, through the impatience of the gardener, is generally the case; but then also, the earth will want frequent stirring up, for without that, no trees in pots will long remain in vigour.

As the English gardens, at this time, far exceed the foreign ones, in their beauty, elegance, and propriety, in imitating nature, by our justly banishing the monstrous ever-green figures of our ancestors, and their strait rows of hedges; and as expence is but little regarded in the making and keeping in order many of the present elegant ones: this will certainly induce many persons to have artificial coverings for these valuable trees, (and no other sorts can be justly preferred to them, for variety and beauty) when they have plans for doing it, with ease and convenience, that they
may

may be planted in the manner nature designed for them, without having their roots confined within the narrow circle of a tub, and their heads lopped, in conformity to the extent of those roots.

As there are various methods of preserving these trees, when planted in the open ground, I shall describe several, that every one may choose that, which best suits his convenience; the article of the fire, to preserve them from the frost, is the grand objection in England; but when it shall be known, how easily the Dutch manage theirs, even in their cold climate, that objection will soon vanish. Adjoining to many of the capital towns in Holland, there are numbers of small gardens, with little summer-houses, most of which are built with wood; near Rotterdam, there are near a thousand of these gardens, and almost all of them have some orange-trees in them; in the Winter they are preserved from the intense frosts, which generally last there for near three months, by means of some of the peat, the natural firing of that country, which is burnt in an earthen pan, or cast-iron pot, in these little summer-houses; this, however, is first burnt in the kitchen, and when they find it is red hot quite through, they take it off the fire, put it in a close earthen, or copper pot, and cover it down with a wet woollen, or linen cloth, and by the air being excluded, the fire is soon extin-

guished, and when it is cold, it will resemble charcoal, except being white, and will, if properly charred, burn with scarce any smoke, and with very little of the suffocating quality the other has, which makes it so proper for green-houses; charcoal burnt in them is very prejudicial to the plants, and often fatal to the person who attends it.

By the means of a few pieces of this burnt, or charred peat, the orange and lemon-trees are preserved in these wooden summer-houses, in this cold country; how easy it is then, in this milder climate, to preserve them, when the roots are guarded against the frosts, by being in the natural ground? when only a wooden case, with a little glass in it, is wanted to put over the head of the tree, with some of this peat burnt within it occasionally.

If it be apprehended that even so little smoke can hurt the trees, a tin funnel of two inches diameter, which will not cost above four-pence each foot, may be used to carry it off at the top; but if the peat be properly burnt, there will be but very little smoke.

The usual method of burning this peat, in Holland, especially by the poor, is in cast-iron kettles, and this way for boiling any thing over it, saves half the fire, to what it would otherwise do, if burnt on the hearth, or in a grate, because

cause the sides of the pot reflect the heat. In grates many people burn English coal with it; the objection may perhaps be, the difficulty of procuring this in England; but on enquiry, I believe there is no one county but what it may be found in by digging, and as for the very little that will be wanted, if it were to be brought from Holland, it would not be very dear, as ships come frequently here for freights, with only ballast in them; each piece is about the size of two bricks, and the price is about eighteen-pence for a hundred of them; but in long frosts, it is about twelve-pence, as the states then suffer it to be sold, without paying duty, to ease the poor.

The cheapest and easiest method of having orange and lemon trees, in the open ground, for producing plenty of fruit, is to plant them against a south-wall, inclining a little to the east, by which they will have the sun earlier on a morning; if this wall be built on purpose, let there, by all means, be a flue in it, with the fire-place at the back, that in frosty weather a small fire may be made; a moveable glass frame must be placed before it, at the end of September, which should project, at least, three feet from the bottom of the wall, and the glasses set sloping, about one foot; the top must be covered with boards an inch and half thick, to keep out the frost, for from thence it will the

soonest reach the trees ; but the most commodious way is to make the frame so much broader, as to contain two or three feet of glass in the roof, and then there will be room for several other things on the border, in the inside, but they should not be such as will shade the orange-trees much, by being too tall, nor should they be planted in the border, to rob them of their nourishment, but only in pots.

If there be no flue in the wall, the frost must be kept out, by burning some of the peat in the inside ; in frosty weather, at night, the glasses must be covered with mats, and in case of severe piercing winds, with double ones ; if the wall be not a brick and half, or two bricks thick, the frost will penetrate through it, therefore, no very thin wall will do for this purpose, unless there be a building behind it ; the ground in front also should be covered the beginning of Winter, with old tanners bark, two or three inches thick, to prevent the roots being damaged, for the roots of most trees, against walls, spread as many feet from the stem, as the branches are high, therefore this is a necessary caution to be guarded against, and if these rules be observed, there will be no danger of the trees being hurt.

Before the trees shall have been planted, all the old earth, two feet in depth, should be taken away, and fresh strong loam, which orange-trees thrive
best

best in, must be brought in its stead, and every year some rotten manure must be digged in.

The glass frame should be made ready early in Spring, that the trees may be planted just as they begin to shoot, and covered with the glasses for some time; in pruning and nailing the branches, particular care must be observed, to lay them at proper distances, according to the size of the leaves, and by no means to crowd them too close, for on that will greatly depend the size and flavour of the fruit. I have known trees, planted in this manner, produce very fine large oranges, and full of rich juice. It is prudent to plant only those sorts, which are the most hardy, but with good conveniencies, the tenderest sorts will thrive very well this way.

Probably, the best specimen of this manner of producing oranges, lemons, citrons, and limes, in all England, is to be seen in those curious gardens, at Whitton, on Hounslow-heath: they shew great ingenuity and judgment of the late proprietor, and designer of them, the duke of Argyle, whose curious collection of valuable exotic trees, was scarcely to be equalled by that of any nobleman in Britain.

Trees, raised in England, are more likely to succeed better than those brought from abroad: one may be more certain of the sorts, and they are generally

generally budded lower than the foreign ones, which makes them more proper for walls.

In a design to plant some orange trees, &c. in the open ground, a place well defended by buildings, or tall trees, from the north, and north-east, is the principal thing to attend to, for on the situation will greatly depend the success of the trees, and therefore by no means plant them but in places well sheltered.

If the ground be not naturally a good strong loam, let some few cart loads of the old earth be taken away, and fresh put in its place, in the Autumn, before you intend planting the trees, and let it be turned over two or three times in the Winter.

As a lawn near the house is the most desirable place for these trees, if the natural soil be not proper there, let enough fresh loam be brought at first, that the grass need not be broken up again in two or three years, to add more; besides, if that be the case, when the fibres of the roots shall have extended through the good earth into the bad, it will cause the trees to decay, and the remedy will then be too late.

Orange-trees may always be safely brought out of the green-houses, when the mulberry-trees have leaves the size of a half crown; this is one of the most certain rules to go by, and generally happens about the beginning of May; but in this case, it
were

were best to be ruled by the trees just beginning to shoot, and if possible, to plant them in April, as soon as ever the weather is settled to be a little mild, to give them more time to make vigorous shoots, and good roots before Winter; it will be prudent, for some time, to cover their heads with mats, at night, supported by some strong stakes, that the branches be not broken; let none but strong healthy trees be planted, (not very old ones) and, here, the most hardy sorts of all.

Against Winter let some frames be made of wood, in the nature of a centinel's box, only with either five, six, or eight sides to it; the size according to the largeness of the tree, or trees it is to cover, with some allowance for their growing, that it need not be altered for three or four years.

If it be a pentagon, or hexagon case, two sides must be glazed, and if an octagon three; if an ingenious carpenter make them, he will contrive that they may be put together by screws, to take up but little room, when not wanted, and to be occasionally encreased by adding another side, or two, as the trees grow; some of the lights of the hot-bed frames may also be made to serve for them, as most gardens in Winter have some spare ones, without the expence of new ones.

One of the glazed sides should be made to open, occasionally to go into it, or to give the trees air,
in

in fine weather; and on one of the boarded sides, towards the west, there should be an opening, about eighteen inches square, to put in your hand to make the fire, with a shutter, to draw close over it; this will admit less cold air, than opening one of the glazed sides, and the fire can be made and attended to by this, without going into it.

In the inside, an earthen pan, or cast-iron kettle, must be placed on a bracket, or stool, about three feet from the ground, to make the fire in, and if the peat smoaks much as it burns, there must be a tin funnel, to carry it off at the top.

The case must be made as close as possible, to exclude the air, and if there be any cracks in the boards, or they do not join close, let some strong paper be pasted over them, and the inside, by all means, be painted white, which will make the place much warmer, when the sun shines.

About the end of September, or beginning of October, according to the season, in a dry day, at the removal of the other orange-trees into the green-house, let the frames be put round these trees, without the glasses; some days after let the windows be put in them, that they may be inured by degrees, to the cold weather; for if they were to be closely shut up at once, it would cause the trees to make weak shoots in the Winter.

In all mild weather, open some of the windows in the day-time ; in a frost, it will be necessary to make a little fire, and to cover them at night with mats, which should be made to roll up ; if the frost be very severe, some fresh horse-litter must be laid round the bottom ; if there be some stakes set in the ground, about four inches from the boarded sides of the case, some thick bands, of either straw or hay, may be laid betwixt them and the boards, which will greatly prevent the frost from penetrating through ; at such time also, the top will want some additional covering, and the fire should be lighted before the sun goes down ; about six pieces of peat will be sufficient for the whole evening, after the case shall have been warmed ; the peat being once lighted, there will be no danger of the fire going out ; if it be made warm by the dusk of the evening, and fresh peat then put on, it will want no further attendance till the morning ; but in frosty days, when the sun does not appear, it will be necessary to continue the fire in it all day, and it will only want about twice to be looked after, to stir up what is not burnt, and to put on a little fresh, for it covers itself up with white ashes ; some few days experience will soon make a person conversant with the management of it, as all that is wanted is only to keep the frost out of the case ; an earthen pan set on the north-side, with a little
water

water in it, will readily shew if the frost has entered it, by the water beginning to freeze; this must be constantly guarded against.

Where a house has a door, opening into the garden, towards the south, south-east, or south-west, if a standard orange, or lemon-tree, be planted about four feet from the wall, on each side the door, and seven feet from each other, and two more trees against the wall, one case may be put over all the four trees very commodiously, if only two are planted against the wall, the case need not project above three feet from the wall, but if two standards also, eight or ten feet.

This case may be made to be sufficiently ornamental, without disfiguring the front of the house, and appear as a porch to it, and will contribute to make the house much warmer in Winter.

These trees must be managed as the others, but will not want near so much attendance to preserve them from the frost; in Summer, they will make the entrance into the house appear very agreeable; as in most gardens there is a gravel-walk near the door, in that case, the gravel must be laid but very thin, over the spot where the roots will extend.

For variety, olives, or pomegranates, may be planted against the wall; these, by their different
verdure,

verdure, will form an agreeable contrast to the lighter green of the orange-tree leaves.

At Pit Place, in Epsom, lately Mr. Belchier's, is a grove of thirty or forty orange and lemon-trees, planted in the open ground; it is entered from an elegant drawing-room, by a pair of large glass folding-doors, and two rows of trees fill each side of the walk; in Winter, a case, entirely of glass, for the front, the roof and the other end is put over them; on the left-hand is a wall, which at once defends them from the frost, and the north winds; this is planted with vines.

The roof is supported by some few pillars of wood, which are set in stone sockets, placed in the ground for that purpose, in the manner of those for posts to dry linen on; these in Summer are moved away, with all the glass work.

For a plantation of trees, made in this manner, it is quite prudent to have a flue made in the wall, at the back, or else one with a moveable iron funnel, to run against the glass, at the end and front, such as is used against forcing walls.

I have also seen a green-house, where they have been planted in it, and the roof made to take off; but the walls being left standing, it did not look at all natural, or even as if the trees were growing in the ground.

From

From this variety of methods, a gentleman may choose that which he likes best, but the case for the four trees round the door, can be executed with the least expence and trouble of any, or one large case may cover several trees planted together in a clump, and in Summer, when it is removed away, the effect will be very natural and pleasing; the border round them will serve for planting several curious exotics, and bulbous-rooted flowers, which want good shelter, but by their being planted in pots, to be set in the green-house, in Winter, never blow so strong, nor multiply so fast.

Any of these methods may also be practised on other curious exotics, and will be the cause of making many produce fruit and ripe seeds, in this climate.

In green-houses, where there are no flues, a little of this burnt peat may be used, and in severe frosts, will be found of great service, as its excellency consists in making so very little smoak, and keeping on fire so long.

It may be burnt, either in an earthen pan, or an iron kettle, but the kettle is the best, as by the handle it may be conveniently moved about to any particular place; there should be a tin pipe, to carry off the little smoak there is, at the end of which it will be proper to have some tin, made in
the

the form of a cover for a dish, and fixed at about a foot distance from the fire, to attract and convey the smoke into the pipe; by informing any tinman, that it is to serve in the nature of those stoves, in which he heats his soldering-irons, he will readily know how to make it.

If peat cannot conveniently be procured, let some balls be made, of about two-thirds cow-dung, and the other small cinders, and be dried in the Summer; these will do almost as well, and better than charcoal, excepting that there will be more smoke than from the peat, and a funnel is absolutely necessary to carry it off.

Where the welfare of the plants is more considered than the beauty of the building, in a greenhouse, there cannot be too much glass introduced, to let in all the light and sun-shine which you can, nor can I recommend a better plan, than that of Mr. Shiell's, nurseryman, at Lambeth, whose whole front, and part of the roof, is glazed; nor for a hot-house, than one lately erected by Mr. Malcolm, nurseryman at Kennington-common, of fifty-three feet long, and thirty-one broad, with a double roof, and one end entirely of glass.

As the Italians, who chiefly supply us with orange-trees, &c. are very negligent, in not sending the proper names with them, of each different species, and as but few of our nurserymen also, are

P

enough

enough exact on that head, I have inserted a catalogue of the names of most sorts, which are now to be procured in England, that every gentleman may be a judge of the proper sorts for planting. I would, by no means, advise any but the hardiest to be planted in the cases ; against the hot walls any sorts will do.

A CATALOGUE of the different sorts of trees.

Orange-trees.

- | | |
|-----------------------------------|--|
| 1 The common Seville orange-tree. | Aurantium acri medullâ, vulgare. Ferr. Hesp. |
| 2 The sweet Seville | — medullâ dulci, vulgare. |
| *3 The China | — Sinense. |
| 4 The curled-leaved | — crispo folio. |
| *5 The striped curled-leaved | — crispo folio, elegantissimè variegato. Boerh. Ind. |
| 6 The horned | — corniculatum. F.H. |
| 7 The common striped | — folio variegato, vulgare, anglicum dictum. B. I. |
| | 8. The |

- | | | |
|-----|---------------------------------|--|
| 8 | The hermaphrodite | —hermaphroditum,
partim aurantium, par-
tim citrium. |
| 9 | The willow-leaved,
or Turkey | —angusto salicis folio,
dictum. |
| *10 | The striped Turkey | —idem, elegantissimè
variegatum. |
| *11 | The Pumpelmoes,
or shaddock | —fructu maximo, In-
diæ orientalis. |
| *12 | The double flow-
ered | —flore duplici. F. H. |
| *13 | The common dwarf
or nutmeg | —pumilum, subacri
medullâ. Bartol. |
| *14 | The dwarf striped | —pumilum, folio et
fructu variegato, me-
dullâ peracidâ. |
| *15 | The dwarf China | —Sinicum pumilum.
Camer. |
| 16 | The childing | —fœmina, seu fætife-
rum F. H. |
| 17 | The distorted | —distortum. |
| 18 | The large-warted | —maximum, verru-
coso cortice. Bartol. |
| 19 | The starry | —stellatum et roseum,
F. H. |
| 20 | The sweet rinded | —dulci cortice. |

The Lemon-trees.

- | | |
|---|---|
| 1 The common lemon-tree | Limon vulgaris. Ferr. Hesp. |
| 2 The sweet lemon | ——dulcis. |
| 3 The lesser sour | ——acris. |
| 4 The common sweet | ——dulci medullâ, vulgaris. |
| 5 The pear-shaped | ——pyri effigiæ. |
| 6 The imperial | ——imperialis. |
| *7 The lemon commonly called Adam's apple | ——Adamipomum commune. |
| 8 The wild lemon | ——spineolas. |
| 9 The furrowed | ——striatus vulgator. |
| 10 The childing | ——citratus, altero fætus, Tourn. |
| *11 The sour lime | ——qui lima acris dicitur. F. H. |
| *12 The sweet lime | ——qui lima dulcis dicitur. |
| *13 The gold-striped | ——vulgaris, foliis ex luteo eleganter striatis. |
| *14 The silver-striped | ——vulgaris, foliis ex albo variegatis. |

The

The citron-trees.

- *₁ The common citron-tree Citreum vulgare. Tourn.
- *₂ The sweet citron —dulci medullâ.
- *₃ The large citron —magno fructu.
- *₄ The Florentine citron, with large sweet fruit, of a sweet smelling rind, and long leaves Citratum Florentinum, fructu magno, plerumque turbinato, lævi ac suavi medullâ, cortice odoratissimo, foliis longioribus citro. Hort. Piss.
- *₅ The Florentine citron, with a pointed fruit, recurved, and a warted sweet-smelling rind —fructu mucronato et recurvo, cortice verrucoso odoratissimo.
- *₆ The Florentine citron, with small roundish fruit, with a sharp taste, and sweet smelling rind —fructu minori, fere rotundo, acriori medullâ, cortice odoratissimo.
- *₇ The sweet smelling Florentine citron, with fruit coming out of each other —odoratissimum fructu prolifero,

The olive-trees.

- | | |
|---|---|
| 1 The manured olive-tree | <i>Olea sativa</i> . C. B. P. |
| 2 The African olive-tree with a broad long leaf, of a shining dark green colour, on the upper side, and of a paler green underneath | — <i>Africana</i> , folio longo lato, supra atro-viridi splendente, infra pallide viridi. Boerh. Ind. |
| 3 The African box-leaved olive-tree | — <i>Africana</i> , folio buxi crasso atro viridi lucido, cortice albo scabro. B. I. |
| 4 The Luca olive | — minor <i>Lucensis</i> , fructu odorato. Tourn. |
| 3 The olive-tree, with a large fruit, having a thicker pulp | — fructu majori, carne crasso. Tourn. |

The pomegranate-trees.

- | | |
|-------------------------------|---|
| 1 The common pomegranate-tree | <i>Punica quæ malum granatum fert</i> . Cæsalp. |
| 2 The sweet ditto | — fructu dulci. Tourn. |
| 3 The wild ditto | — <i>sylvestris</i> . Cord. Hist. |

4 The

- 4 The double-flowered — flore pleno majore.
ditto Tourn.
- *5 The American dou- — Americana nana, feu
ble ditto humillima. Tourn.

All the sorts of olives and pomegranates (except the American pomegranates) frequently produce ripe fruit here, when planted against walls, in a warm situation, if the autumn be not very unfavourable, therefore they want the least shelter of any.

The sorts marked with an asterisk [*] are the tenderest, and will require to be covered sooner in Autumn, and more care taken of them in the Winter; and therefore they are the properest to be planted in the cases, against the walls.

In the same manner, may be sheltered many sorts of valuable American trees, which at present are very scarce, and this will enable them to produce ripe seeds, many years sooner than by any other method.

CHAPTER XVIII.

An approved method which occasions the cuttings, layers of trees and shrubs, which are difficult to strike root, and also grafted trees to grow.

EVERY one who has been used to sow the seeds of various kinds of exotic trees and shrubs, must have met with many disappointments, in frequently having but very few plants come up, though seemingly they have taken all prudent care, in guarding against every probable accident that might happen; but the chances against their succeeding, must always be more against than for them, on account of the following circumstances: The seeds, cones, nuts, &c. are generally collected by captains of ships, or others, totally unacquainted with the nature of the trees, and whether or no the seeds are properly ripe when gathered; after that, they are frequently put up damp, and consequently in the voyage, the vegetative quality is destroyed, by their either heating, or turning mouldy; other sorts, for want of being

instantly put into earth, after gathering and brought over in the mould, when sown will not grow, owing to the length of the voyage, before they arrive here; so that, in general, of all the American and other foreign seeds, which have been sown in England, perhaps not one in ten has produced a plant.

This has made us frequently have recourse to plant cuttings, or make layers, (but then it is several years before a tree will afford many, and one is not willing to cut it into pieces, after having been a long time in raising it;) or else we lay down the branches in the ground, which spoils the beauty of the tree, and even many of these fail notwithstanding all possible care has been taken; but of all the methods commonly practised, I have found the following succeed the best.

After the cuttings shall have been properly planted in small pots, in the soil adapted to each sort, and moderately watered to close the earth to them, plunge the pots in the bark-bed of a stove, and set over them a bell, or hand-glass framed with wood, as the leaden ones cannot be closed sufficiently to exclude the air, and let the tan cover an inch of the glass round it; for the same reason, shade them in the middle of the day, when the sun shines, and if the earth be dry, water the bed, but by no means take off the glasses, till the cuttings

tings are either dead, or begin to grow; then, by degrees, begin to give them air, and raise the pots out of the tan, that if they be plants which grow in the open air, they may, by degrees, be inured to it.

A bell, or hand-glass, in the same manner, is to be set over a plant, which is laid down in a pot, or wide pan, to be propagated by layers, and to be plunged in the tan-pit of a stove.

Very early in Spring, is, in general, the best time for most sorts, because of having all the Summer before you, to harden them in, after they shall have stricken roots, against the Winter; but sometimes it happens, that some difficult sorts must be kept in the stove all the first Winter.

Quite fresh tan is not so well as that, which has been in the stove two or three months; when it begins to decline in heat, it must be stirred up round the pots; if the cuttings neither decay, nor shoot, at the end of four or five months, the glasses must be taken off, to permit the tan to be moved, and some fresh added to it.

Such as have not the conveniency of a stove, must be contented with a hot-bed, made of tan, but then, the bell, or hand-glasses, must be covered with a frame and lights, that by the double glasses, the cuttings may be protected from the
chillness

chillness of the outward air, striking so strongly on the glass, which immediately covers them.

In the Summer time many sorts will readily strike root, if a glass be only set over them, in a shady border, or particularly, if the pots be plunged into a hot-bed, which has not quite lost its heat, but, never be impatient about taking off the glasses, till, by the shoots they have made, you are fully convinced of their being well rooted.

In the stove I have scarcely known any sorts to fail, not even the resinous trees, the most difficult of any to strike from cuttings; I have raised Goa cedars, *Cupressus lusitanica*, this way, and out of one hundred cuttings of *Grewias*, *Grewia occidentalis* have had above ninety grow.

The Rose-acacia had for several seasons greatly disappointed those nurserymen, who had grafted them on the common Acacia, as most of the grafts died, before they were united to the stock; this inclined one of them to graft some very near the ground, and by drawing the earth into a ridge about six inches high, to cover the clay, to keep that constantly moist, he raised several hundreds.

This method may, from the same principles, be applied to many other sorts of trees, and there is no reason to doubt but it will have the like success,

success, especially in those years which are remarkable dry, after the grafting season ; but then it can only be done, where the grafts are within about four or six inches of the ground.

A small bell-glass set over a newly-grafted tree, will frequently cause it to grow, by more forcibly attracting the sap, but this method can be practised only on valuable trees, as the trouble and expence will not answer for the common sorts of fruit-trees.

If the tan happens to be very fresh, it will consequently throw up a large quantity of steam, which, from the over-abundant moisture, may cause the cuttings to rot, before they become rooted ; in that case, lay at top of it some fresh saw-dust, about two inches thick betwixt the pots, which will help to attract the steam, and keep the inside of the glasses drier ; oak saw-dust is the most proper, but any sort will do, excepting that of resinous trees.

If so near a pottery as to have an opportunity of giving directions, instead of common shaped pots, it were better, for planting of cuttings, laying down valuable trees and shrubs, and sowing of seeds, to have pans made about sixteen or eighteen inches diameter, and six deep, with a rim one inch thick, and an inch and half broad ; out of this broad rim let part of
the

the clay be hollowed out, to contain a circle of water, half an inch deep, and one inch broad, which will prevent various sorts of insects from coming to devour the young plants.

CHAPTER XIX.

*Improvements in Cyder, Perry, and made wines,
to render them equal to several foreign sorts; the
profits of planting fruit-trees for wine.*

ON reading the Gentleman's Magazine for 1767, I found a remark made, that in the reign of King Charles the first, there was duty paid for forty-five thousand tons of wine, and in 1767 for only twenty-four thousand: yet every one must allow, that from the present way of living, there must be supposed to be, at least, double the quantity now drank: this proves then, that the greatest part of the other sixty-six thousand tons, must be brewed, and without any doubt, cyder is the basis from whence this immense quantity of artificial wine is produced, assisted by raisins, sugar, and some honey, though that, from the small quantity produced, is in most years, too dear to be made use of largely.

I have, for many years, constantly made several sorts of wine for my own use, as I had no idea of
paying

paying such an advanced price for a liquor, which I could make for less than half the money, and which, exclusive of its saving the duty for several family purposes, answers as well; but it is certainly impossible to make wines equal to the high-flavoured claret, burgundy, and champagne, which will sell at a great price, even in their native country, as well as the finer sorts of several other foreign wines, which we import.

Let any one, who has travelled in the wine countries, especially France, recollect how very ordinary the wine is generally in inns, and many private families; he must allow, that our English artificial wines are much superior to them, if well made, and kept to a proper age; in point of health, they are particularly so; what I shall endeavour to prove, is, that we are able, from the fruits of our own country, with the addition of sugar and raisins, to be on an equal footing, to drink as good wines of our own making, as the inhabitants of a middling station, of the wine countries do.

Another strong motive is, that as the French are our natural enemies, and oppose us if possible in every branch of our manufactures, and the Portuguese also, are every year encroaching on our commercial rights, (witness their raising the price of their wines) we ought to use every method

method in our power to decrease the consumption of the commodities of both those kingdoms, by substituting the productions of our own in their stead.

Persons not acquainted with the English wines, are frequently imposed on, and think them foreign, especially in many of the following sorts.

Large quantities of perry are drank for champagne. I am confidently told, that there is a great art made use of even in Champagne, in the brewing and adulterating of the wine; and in France, a sort of sparkling white burgundy, of not half the value of the other, is frequently given for champagne.

A wine made from currants, greatly resembles the ordinary red champagne and red burgundy, but much more stomachic.

It is proper to remark, that there is white burgundy, and red champagne, but very little of either is imported into England, though the red champagne begins to be more esteemed than it used to be, as it is not attended with the intoxicating quality, which the white has.

Frontiniac is imitated by an infusion of white elder flowers.

The Smyrna raisins, with brandy and cloves, are used to make artificial (and are greatly superior to indifferent) madeira; many persons not
well

well acquainted with the true sorts, are often deceived by Teneriffe, or Vidona, a wine which does not cost so much as Port.

White currant-wine, made with loaf-sugar, and strengthened with brandy, gently resembles white port; with an infusion of clary, and made weaker, it resembles rhenish; if very strong and old, it resembles hock; and if made with Lisbon sugar, and kept five or six years, to lose the taste of the sugar, it resembles sack.

Malaga raisins make a good imitation of Lisbon, but if made strong, and kept four or five years, it imitates mountain, especially if enriched with an emulsion of almonds, or jar-raisins.

Cyder may be used in almost all these imitations, as the basis; adapting the sort, as new, old, rough, smooth, sharp or sweet, according to the sorts necessary to be imitated.

Honey, also, is a very necessary ingredient, in many of these mixtures, and has an amazing quality in enriching of cyder; if some of it be clarified, and put into cyder, and the liquor kept till it be well incorporated, frequently racked, and fined with isinglass, few persons will know it from wine.

The changing of white-wines into red, is easily effected by an infusion of turnsole, the syrup of sloes, elderberries and mulberries, assisted some-

Q

time

times by putting them on the lees of port, claret, or alicant wines; when the colour of red wines is too pale, and pricked, by putting to it some scum-milk, and whites of eggs, the red colour will subside to the bottom of the cask, and there will be a clear white wine, which will only want some brandy, or spirits of wine, to restore it to its former strength.

All kinds of spices, and many aromatic seeds are greatly used for the flavouring of wines, as well artificial as natural.

From gooseberries, also, is made very good wine, and particularly vinegar, which for pickles, is equal, if not superior, to French white wine vinegar.

In a small pamphlet, published several years ago, entitled, *England's Interest; or, the Farmer's Friend*, is a valuable treatise on the advantage accruing from making plantations of apples, pears, and crabs, for making wine from them, and as the book is now very scarce, the following abstract from it may be useful to many.

To make Cyder-royal, or raise ordinary Cyder, to be full as good, or better than French wine; or to make the best simple Cyder, twice as strong as it is, by putting the strength and goodness of two hogsheds into one, which is thus effected:

“ First, **P**UT one hogshed of cyder, and some part of another, into a copper still, and draw off all the spirit: after which distil it a second time, and then put it into your other hogshed, and fill it up; stir it about well, and keep it close stopped, except one day in ten or twenty, let it lie open five or six hours. And within three months, if the ensuing directions be observed, this cyder will be full as strong, or stronger, than the best French wine, and altogether as pleasing, though it may be somewhat different to taste.

Upon trial I have observed, that brandy, spirit of wine, and of grain, and other spirits may be of good effect, in this business, provided they are drawn fine; yet, by experience, I have found the spirits of the same kind, or at least of some other fruits, to be the best and most natural; and the spirits raised from ale, or beer, to be the most improper, unless the ale and beer be mixed with cyder before the spirits be drawn off.

This method of improving cyder, and other liquors, renders them more strong and delicious, and also makes them much more wholesome for the body than simple cyder: the heavy, cold, and sickly parts being either wholly taken away, or so corrected, that it becomes no way prejudicial to the stomach, nor any longer apt to generate wind. And I think none will deny that the juice of vegetables growing in our own soil, and under the same influence with ourselves, being thus honestly improved with their own spirits only, or the addition of a little innocent sugar, are as agreeable to our bodies, and must needs be as good and wholesome as those that are brought from regions remote, and climates vastly different, and afterwards brewed again with variety of unknown, and perhaps, dangerous ingredients. And much more is the former to be preferred than the latter, in another respect, *viz.* Because if ten times more of it be spent than there is of foreign wines, the nation will be never the poorer for it, but on the contrary much richer.

For there is in this invention not only strength to chear the heart of the weak and wearied; delicacy to please the palate of the curious; cheapness to render it familiar to the poor; private profit to gratify the rich, and wholesomeness to endear it to due observers of their health; but also
pub-

public advantage to recommend it to the regard of the king and parliament. For by this expedient, England and the territories thereunto belonging, may save at least six, if not eight hundred thousand pounds ster. *per Ann.* by saving so much treasure as goes out every year to the enriching of other nations, and impoverishing of our own.

But, perhaps, our greatest wine-bibbers will by no means, change their outlandish liquors for domestic cyder. Because, say they, the quantity we are to drink will make us sick before it will make us merry, &c. To which I answer, this is undoubtedly true of our common simple cyder, but if you please to consider the cause, you shall find no room for this exception against our cyder-royal: for that which useth to cause this sickness in the stomach, is the chilly cold phlegmatic part of the cyder, *viz.* That which hath least spirit in it is most hurtful: that this is so, nothing can be more evident; for that the strongest cyder is most free from occasioning this distemper. Now this we know, that the spirit of cyder is no other but the purer part of it, *viz.* the strong, warm, and lively part separated from the weak, cold, and melancholy dead part; so that reason must needs yield, that the spirits of the cyder being mixt with cyder, cannot but make it both more strong and pleasant,

Q 3

fant, and also more wholesome, for that, by this expedient the sickly, cold, and windy part is cured.

Moreover, for want of strength and life, common cyders are apt to decay and die ; this we see by experience ; for that as the strongest simple cyder hath most spirit in it, and therefore lives longest, so the weakest cyder that hath least spirit in it, will soon grow sickly and decay ; therefore this expedient must needs be so far from rendering cyder more unwholesome and unkind, that 'tis rather to be esteemed its most infallible physician or remedy ; for that it corrects all the ill humours that cause its sickness, or ill effects on human bodies.

And thus much I can honestly and truly aver from long experience, that a glass of this refined cyder-royal, drank half an hour before meals, procures a good appetite, and afterwards helps digestion, cheers the heart, and revives the spirits. And as for its operation upon the brain, when too much is drank at a time, the same is less hurtful than excess of strong beer, ale, canary, or mountain wines : for 'tis so far from clogging the stomach, or clouding the brain with thick muddy vapours, that I do believe a man may (were it not a sin :) be fuddled and sober twice in a day, with this liquor, without mischief to his health ; and
the

the reason, in my opinion, is, because it so admirably provokes urine, and carries off with it such foul and nauseating matter, that too often offends the head, stomach, and belly; the truth of all which will be soon attested by the experience of those that shall make trial.

When cyder comes to be plenty, there may be as much good brandy made thereof, as may furnish the nation, both for land and sea service; which, perhaps, may save us several hundred thousand pounds *per Ann.* for which use the most stale and sour cyder, unfit almost to be drank, will make the greatest quantity, and best tasted brandy, being twice distilled. Of this cyder-brandy I have kept some four years, and better than it was at first making, and without doubt, would keep four years longer.

As to the time of putting your spirits into your cyder, observe, that the staler your cyder is before the spirits are added, the more time they require to incorporate, and the sooner they are put in, the sooner it is fit for use. But in case you put your spirits into cyder, before it hath fermented, they will evaporate and be cast out; therefore be sure your cyder be racked off the lee, once, twice, or three times, as you find occasion, and being indifferent fine, then put in your spirits, either with or without sweets, well beaten together with a cer-

tain quantity of cyder ; and after it is put into the cask, stir it very well together again, and bung it close up, and in about two or three months after it will become very agreeable, and fit for use ; observe, the longer it lieth the better, especially if your cyder be stale before your spirits are put in ; for as this cyder drinks very unpleasant when first mixed together, so no wine can be more strong and pleasing than this, when it hath stood its due time to incorporate and meliorate, and the mean time to be kept close stopped, without drawing any out, unless the season of the year be warm ; then, to prevent its fermentation, let the cask be open, as you find occasion.

The husky part of the apples, after the cyder is pressed out, being steeped two or three days in as much water as will cover it, and then pressed clean out, and kept in a vessel until it hath well fermented ; as also the lees of all your cyder, will afford spirit or brandy so much, that being added to the cyder of the same apples, will make it as strong as French wine ; which is a thing of great advantage.

Spirits being put into bottles, amongst cyder, will not drink well. I was a long time troubled to find out how to make this drink as palatable and pleasing, as it was become strong and chearing, until I put both cyder and spirits into wooden
casks ;

casks ; the first I compleated was in a vessel of six gallons, into which I put two quarts of the sweets, and three quarts of the spirits of cyder, which, after it had lain two or three months, I found to be as strong and as pleasing as canary.

This cyder-royal, or new wine, thus prepared, may be kept in the cask two or three years, and be better thereby, provided you keep the cask full ; to do which, you must observe that, in two months time the liquor will waste a quart, more or less, which you ought to fill up again with liquor of the same strength, or if stronger the better : and by this means it may be kept, and grow better and better, some years, without putting into it (as some are said to do in their liquors) stum, or other unwholsome ingredients.

Suppose, by keeping cyder-royal too long, it should become unpleasant, and as unfit to bottle as old hackamore, take but one hogshead of that and one of tart new cyder, and before the latter be quite clear or fine, mix them together in two other hogsheads well perfumed, and add of spirits and sweets a due proportion to the quantity of your new cyder.

Suppose it be in the month of October or November, you may be sure to have it full as good, if not better, than ever it was, and a most excellent

cellent cyder-royal to drink, or to bottle, by or before Christmas.

This is a certain maxim, as well as the foregoing, nor can your new cyder be made half so good by that time of the year.

If you would have your cyder-royal drink like canary, or other sacks, you must add more of the spirit, and as much sugar or sweets, (the making of which is hereafter taught) as will best please your palate. And as the proportion of one pint of good spirit to a gallon, will make it as strong as French wine; so one pint and a half will make it full as strong as Spanish wine; and by this means, in like manner, perry, and the juice of cherries, mulberries, currants, and gooseberries, (especially gooseberries) may, by adding thereunto their proper spirits, or any other convenient spirits, be made as good and pleasing as the wines made in the Canaries.

If any object, that here is a mixture in your cyder-royal, and say that therefore they will not like it, to them I answer:

First, 'Tis not mixtures, but dangerous or improper mixtures, which ought to be avoided,

Secondly, This, in truth, is not any mixture at all, since only the better part of the same thing, or kind, is added to it, and when all is done, it is but cyder, or wine refined and made better, with-

without any composition but what comes from the apple, unless you will (which is left to your own free choice) to gratify your own palate, add a little sugar, which all men know to be wholesome and nourishing, especially when it is so purged, as herein after is set forth.

The best known fruit that is only for cyder, is the red-streak, which is a kind of wilding ; but for both uses, *viz.* for the table and cyder, the best are golden pippins, because they are quick growers, and great bearers, yield the greatest quantity of liquors, and the best in quality ; and their very husks, after the cyder is pressed out, especially the golden pippin, will yield more spirit than any I have yet found out : nor is it harder to raise the best sort than the worst.

Some other wildings I have found that are as good as those, but they are as yet unknown by name ; but this is most certain, good wildings and good crabs, are better for cyder, than the most delicious summer or winter table fruit, or sweet apples (golden pippins excepted ;) yea, the bitter sharp crab is much better than a bitter sweet apple, because the juice of the first will afford twice as much spirit as the latter. And no spirits can be more pleasant, since the ill tastes, if any, are left behind in the phlegmatick part of the cyder : For example : Suppose you put ten pounds
of

of sugar into your still, with ten gallons of sour cyder, the spirit will be never the sweeter; or suppose you fill your still with new sweet mead, made of honey, sugar, or molasses, you shall neither have spirits nor sweets come out of it, but only fair water; but if you let it stand till it be well fermented, and become sour, it will yield spirit in abundance; so likewise cyder, perry, or juice of crabs, gooseberries, currants, mulberries and cherries, will yield little or no spirit, until it be passed the fermentation, or working, and then the more sour it is, provided it be not vinegar, the more spirit it will afford. Nevertheless, this observe, apples of bitter taste make the cyder bitter.

To cure cyder that is subject to fret, is somewhat difficult, but the best way is to draw it off into another vessel, and do so once in six or ten days, as you see occasion, always taking the lee from it as often as it is raked. Let not your vessel be full, by a gallon, nor yet stopped close, until, by drawing it off, it be made to leave huzzing and sputtering; for the fuller and closer it is, the more it frets. When your cyder is thus quiet, then have a care to keep the vessel full, and close stopped; yet, lest you should stop it too soon, open it once in two, three, or four days, and if
you

you find it is not yet quiet, let the vesseſſe lie open an hour, or half an hour at a time.

Omit not to burn a match of brimstone, dipped in coriander-seed, in your empty cask, just before you put your cyder in, and this as often as your cyder is racked, and it is an excellent expedient to prevent ill tastes and fermentation.

The best way to order the sugar, before you put it into your cyder, is to make it into a kind of syrrup, or sweets, by dissolving it into water. A hundred weight will make sixteen gallons, and so proportionably. But before you put the sugar into the kettle, take the whites of thirty or forty eggs, the more the better, which being well beaten with a rod, or whisk, in eight or ten gallons of water, then put four gallons of this egg-water, so prepared, into your kettle, where your sugar is to be dissolved; but be sure when it boils, put in more egg-water, to keep it from boiling too high, and so continue putting it in, one quart after another, until all your egg-water be spent: but to prepare your egg-water in parcels, viz. a quart or two at a time, as you use it, is the better way. The use of the eggs is to raise such a scum as will carry away, not only the foulness of the sugar, but all the egg also. When the scum hath done rising, and is clean taken off, fill up your kettle with as much water as will make up your quantity,

tity, and let it boil to the size of a fyrrup, and being cold, put it into your cyder: a little coriander-seed bruised, and tied in a linen rag, put in whilst it's boiling, will give it a grateful scent.

Of these sweets you may put two or three gallons into an hoghead, as your palate invites, or the tartness of the cyder requires, but then put them not in till you have racked your cyder the last time, and it be past the fermentation. Before you put your sweets into the cask, mix your sweets and the spirits you intend to put in, with a like quantity of cyder, and stir them well together, then put all into your cask of cyder, and stir them with all your strength, with a strong staff in the bung-hole, for one half quarter of an hour; after that stop it close, and draw none off till two, three, or four months, by which time it will be answerable to what hath been proposed; only remember, that if you will have it to resemble canary, you must add the greater proportion of spirits and sweets; but if French wine, then the less sweets, or none at all.

If the sweets be made of white sugar, the cyder will be pale; if of brown, it will raise it to an higher colour, and in my opinion, the latter is as good, as well as the cheapest, since the coarsest, by the preparation, becomes as pure as the finest,
and

and sweets being thus made, will cost but 5*d.* a quart."

The same author then proceeds to shew the value of land, by planting it with fruit-trees, to make wine from them, as follows.

"Most lands are capable of being improved by planting fruit-trees for cyder, perry, &c. and certainly if the greatest improvement in France is by planting vineyards, an equal improvement must be made by planting fruit-trees, since of the fruit may be made as generous a liquor as the grape produces.

This improvement of land, by planting of fruit-trees, is thus demonstrated: 1. Eight-score trees, viz. red-streaks and golden pippins may conveniently be planted on an acre, each standing sixteen feet distant. 2. The trees cannot be supposed to bear less than one bushel on each tree, one with another, that is eight-score bushels; and 'tis well known, that twenty bushels of apples will make a hoghead of cyder; so that one acre will yield eight hogheads. 3. These eight hogheads of common cyder, will make four hogheads of cyder-royal, full as good and strong as French wine, which, at 2*d.* per quart, is 2*l.* per hoghead; and so 8*l.* is produced from one acre.

But if it be sold at 4*d.* per quart, as certainly it may, since this cyder-royal will be as good as
wine

wine of 18*d.* per quart, then the product of an acre may be worth 16*l.* besides the profit of the grafs or corn. For if you plant your trees at the distance of twenty feet one way, and but thirteen the other, (which is all one with sixteen feet before mentioned) you may plough well enough between.

Further, if gooseberries and currants be planted amongst the apple-trees, which will prove much the better husbandry, more than four hogsheds of wine-royal, may be made in a year of them, and much better than the other; so that at the same price, viz. 2*d.* a quart, there will be 8*l.* more raised, that is 16*l.* per annum, from the same acre of ground.

But since it is usual for apple-trees to bear some four bushels, five, six, seven, and upwards, to twenty bushels, it is very probable that one tree with another, may bear four bushels, whence may be produced sixteen hogsheds of cyder-royal; which at 3*d.* per quart, (that is 3*l.* the hogshed) comes to 48*l.*

The product of currants and gooseberries may amount to much more than 8*l.* per annum, at which we have computed it; for I know, by reason and experience, the currant-trees and gooseberry-trees, well husbanded, may yield one gallon each, and upon one rod of land may be planted
sixteen

sixteen trees, each four feet asunder, so that one rod may produce two bushels of currants and gooseberries, and there being eight score rods in one acre, sixteen score bushels will grow thereon; which yielding sixteen hogsheads of common wine, makes eight hogsheads of wine-royal, which at 3*d.* per quart, comes to 24*l.* and the 48*l.* made of cyder (according to the last computation) makes 72*l.* per annum, at 3*d.* per quart."

It was formerly the fault, in almost all plantations of fruit-trees, to plant them too close together; therefore when the apple-trees begin to touch each other, every other tree ought to be taken away, and then they will be in rows of twenty feet one way, and twenty-six the other, which will be quite near enough, and the remaining trees will produce more fruit, than if all were left; in some years after they will want thinning again, so as to be left in rows, at the distance of fifty-two feet by forty, with one tree left in the other row, to have them in quincunxes; but if the plantation consists wholly of golden pippins, as they are not a very large growing tree, they will not want the second thinning. Our author has made a mistake in saying, that 20 feet by 13, are equal to planting them at a rod asunder; the rod contains $272\frac{1}{4}$ square feet, but the other distance only 260 feet.

The following will more readily explain the method.

The first planting,	After the first thinning	After the second
at 20 feet by 13.	they will be left at	thinning in this
	26 feet by 20.	form.

* * *	* * *	* * *
* * *	* * *	* * *
* * *	* * *	* * *
* * *	* * *	* * *
* * *	* * *	* * *

The gooseberry-trees, and currant-trees, must also be greatly thinned, in the same proportion, so as that the trees may never touch each other, nor be left too much under the shade and dripping of the apple-trees.

However odd it may appear to those unacquainted with the methods of managing wines, that spirits should be put to them; on enquiry, they will find it the constant practice, in every country where wine is produced, according to the state the wine is in, whenever they either want to stop the too violent fermentation, or to encrease its strength: Madeira wines, in particular, are greatly heightened by the addition of brandy.

As a proof of the excellence of brandy in all vinous compositions, I shall give the following receipt for making a very agreeable liquor, which is but little known, though frequently mentioned in many receipt-books, under the title of lemon-water, lemon-wine, or mock citron-water; from the facility in making it, the cheapness of it, and the general satisfaction it gives most persons who have drank of it, it deserves to be known in every family.

Take the parings of twelve lemons, cut very thin, put them into two quarts of brandy, and one quart of good spring water, adding about six ounces of fine loaf sugar; then put into it a quarter of a pint of scum-milk, boiling hot, which will cause it to curdle immediately; stir it well, and cover it up close, and at the end of three or four days, you will find a beautiful lemon-coloured transparent liquor, which must be carefully poured from the sediment, or drawn off by a crane, and then bottled; if any of it be thick, it must be filtered through flannel, but with proper care it will not want that trouble; it is fit to drink immediately, but better if kept some time. In making a quantity, a large stone jar, or barrel, may be used, and then the clear liquor can be more readily drawn off by a cock; but the barrel should be propped up before, that the sediment

may not come away first, and if it stand in the barrel for two or three months before it be bottled, it will be better; this is a very convenient liquor to put into made wines, to give them an agreeable flavour.

Honey is also a very necessary ingredient to have plenty of, if you make much cyder, as scarcely any thing contributes so much to improve it, and enrich it; therefore in all plantations of apple-trees, bees ought to be kept, particularly, as the blossoms of the trees will be of service to them.

As nature, in all countries, has produced specific remedies for the disorders attendant on the climate; so apples, and their juice, are known to be here an almost certain remedy, if used in proper quantities, for that baneful disorder, the scurvy, which has destroyed so many of our sailors; and, as it is urged by some, that if the raising of bees be greatly encouraged here, for the sake of the wax, there cannot be a demand for the quantity of honey, which will be produced; that objection would soon vanish, if cyder were to be purchased for the use of the navy, and improved by the addition of some honey, and its own spirits, which would cause a large consumption in both articles, and greatly contribute to the preserving the health of our seamen.

Our

Our English artificial wines also, have not due justice done them, because so few persons know the methods of making them properly, are at the same time so impatient to drink them, almost as soon as made, without even racking them from their lees, or fining them with isinglass, milk, or by any other method.

In the Museum Rusticum is a letter, written on the nature of the second fermentation of wine, when put into the casks, which recommends an excellent method. I would advise every one to peruse it, who attempts to make wine, and shall mention some few methods which I practised with success.

Having, at the end of every two or three months, plugged and tasted all the sorts of made wine and cyder, if I found the liquor tolerably fine, I racked it off, and after taking away the dregs, if there was not another cask about the same size, returned it into its own cask again, and filled it up with some of the same kind of wine; when there was none of the same sort, I either made use of some other, the nearest to it, or of cyder and some brandy.

If it fermented, or became too weak, I added jar-raifins, sugar-candy, clarified honey, or almonds, with some brandy, and after putting an ounce of isinglass in each hoghead, stopped it

close up, and marked on the hoghead with chalk what was done to it, and when.

In two or three months, after, it was examined, and, if necessary, refreshed with some of the same ingredients; sometimes it will want racking again, but perhaps, only some more isinglass, if it is not perfectly bright; then in another month or two, it will be fit to bottle; but never attempt to bottle any wine, if it be not perfectly bright and clear, and always do it in clear dry weather, and in the encrease of the moon.

Small wines are generally fit to bottle at the end of six or eight months, but strong ones are not so till they have been made twelve or eighteen months; but they are greatly forwarded by racking and fining them; and this must be observed, that it is in the barrel that all wines mellow and improve themselves, and not in the bottles.

As raisin-wine is the most common sort made in families, and many persons give themselves unnecessary trouble, in picking, cutting, and squeezing the raisins, which causes so large a quantity of dregs, as often to spoil the wine, I shall mention the way I practised, which I found very easy and successful.

To make a hoghead of wine resembling mountain, take three hundred pounds of Malaga raisins,

fins, with only the large stalks picked out, the which, reserve for the vinegar, and put about sixty-five gallons of the softest water, upon them into a mash-tub, which has a cock in it, let them be well stirred twice every day, for about twelve or fourteen days: if the weather be very cold, the tub should be covered, to cause a quicker and stronger fermentation; the day on which you intend barrelling it don't stir it, but draw it off as clear as possible, and put it into a well-seasoned hoghead, first burning in it a linen-rag, which has been dipped in melted brimstone, with some powdered allspice, cloves, or coriander-seeds, strewed on it; afterwards put in it a piece of toasted bread dipped in yeast, to give it another fermentation, and in about a month or six weeks time, when you find it has nearly done fermenting, pour in a bottle of brandy, and stop it up close; in about three months time plug it, and if clear, rack it off, and treat it as directed above.

On the raisins you may put fifteen or twenty gallons more water, to make a small wine, and afterwards, with the stalks being added, the same quantity of water to make vinegar, but if you don't choose the small wine, it will make twenty, or twenty-five gallons of very strong good vi-

R 4

negar;

negar; the water must stand on the raisins till it begins to turn sour; then, barrel it, and set it in a warm situation, with the bung-hole open, and in three or four months it will be fit for use.

CHAPTER XX.

*On the various uses to which potatoes may be converted;
the method of making starch from them.*

THE Society for the encouragement of arts, &c. has very lately favoured the public with the account of a new species of potatoes, whose force of vegetation is so amazingly great, that some of them weigh nine or ten pounds each; a small cutting has produced thirty pounds of potatoes, in the space of about four square feet: whenever their cultivation is encouraged by art to its utmost extent, they are so large as not to be proper for the table, because the inside cannot be rendered eatable, without spoiling the outside; it is therefore necessary to find out the most advantageous method of making the utmost use of this very valuable root; and one method to which, it seems particularly adapted, is the making of starch from it; it may also serve to feed cattle, poultry, and pigs.

As the process for making starch from them is not generally known, I shall here relate the manner

ner in which I have had it made ; it is allowed by all to be much superior to, and not half the price of that made from wheat ; if I mistake not, there is an Act of Parliament to prohibit it from being made for sale, on account of encouraging the culture of corn.

Put the potatoes into a tub of water, and let them lie in it till the earth which adheres to them be quite soft, and will easily separate, by stirring them with a birch broom ; take them out, and wash them in two or three other waters, till they become perfectly clean ; then pare them and have ready some large tin graters ; grate them on these as fine as you can, and put the pulp into tubs, about half full ; then fill them up with water ; stir it well once a day, for three or four days, and take off all the scum which rises to the top.

About the fifth day, take out the pulp, and put it into shallow earthen pans, such as are in common, used for milk, but put no more than what will cover the bottom of the pan an inch thick, and put water upon it.

Every morning pour off the water, and add fresh to it, and by degrees you will perceive it to be increasing in whiteness, and at the end of twelve or fifteen days, according to the season, and goodness of the potatoes, it will be finished ; there will remain nothing but the finest farinaceous part of
the

the potatoe, which will be equal to snow for whiteness; when it shall have arrived to that state, put no more water on it, but leave it in the pans till quite dry, then put it into paper bags, and keep it in a dry place till it be wanted.

In an abstract of the Memoirs of the Swedish academy, I found the following account of one of their methods of making use of potatoes, and suppose the process at large may be seen by referring to the work itself.

“ Mr. Charles Skytse has proposed to distil
“ brandy from potatoes, in order to save the corn,
“ which is so dear in Sweden, and finds by ex-
“ perience, that an acre of land, set with potatoes,
“ will yield a much greater quantity of brandy,
“ than when sown with barley.”

CHAPTER XXI.

An improvement in raising firm and well-flavoured cucumbers, and particularly for seed.

AS nature has furnished the cucumber plant with tendrils, which enables it to take hold of any thing which is within its reach, to support itself; we certainly act contrary to her designs, when we suffer this plant, which is a native of a warm climate, to lie on the moist ground to produce its fruit, especially in such a climate as this; the different flavour of these cucumbers raised otherways, is a sufficient reason for our altering the present method of cultivating them, at least to those that are curious, and pay a proper regard to their health; the difference in point of wholesomeness, is very great between those raised in the common method, and others trained against walls: one will have the flesh firm, well tasted, without seeds in it, and almost all solid; the other will be quite the reverse, and full of seeds, before they have half attained their natural size.

It

It is now near twenty years since I first saw the method of nailing them with shreds of woollen-cloth against walls practised; it has been followed but by very few persons, nor has it, I believe, been ever mentioned in any books written on the subject of gardening, one letter in the Museum Rusticum excepted, which recommends the practice, and particularly advises it to be done for those intended for seed, if persons will not give themselves the trouble to do it for those which are to be eaten.

I have since tried other methods, which have not given so much trouble as nailing, and answered tolerably well; but for seed cucumbers, I would by no means omit the nailing: and against every cucumber, intended to be saved for seed, let a glazed pantile be fixed behind it, which will still promote its growth.

For the others, make a slight frame, with three laths, and nail more across, at the distance of every four inches; by setting this frame against the wall, they support themselves very well; but if instead of all laths for the cross ones, there be some small round sticks, the tendrils will twist more times round them, and support the plants better than against the square edges of the laths; these frames will serve for several years, if taken care of.

I have

I have also stuck them with sticks, in the same manner as peas are supported, and found them answer very well; the loppings of elm-trees are the best for this purpose, as there are so many small horizontal branches from the main stem.

As the raising of very early cucumbers is eagerly pursued by most gentlemen curious in gardening, I have tried various methods to have them all the year round; in Autumn I have laid vigorous shoots in the earth, to make them strike roots, then moved them as soon as those roots were stricken into a pot, and kept them in a hot-house.

The following method, is, I presume, the best to raise them in the Winter; for though I have kept them in a stove which was hot enough for fruiting pines, yet I have sometimes had plants of cucumbers which did not grow an inch in a month.

When the plants shall have increased to a proper size to set out, plant them in boxes, eighteen inches deep, fifteen wide, and three or four feet long; set these against the flue of a stove, and place some lights against them, in the nature of a forcing frame, with the ends closed up with a board; as they shoot, nail them up against the wall, and they will come much forwarder than in the open stove, by the glass being so near to the plants.

If the stove be about seven feet high, a row of boxes and lights may in the same manner be set upon the flue.

CHAP.

CHAPTER XXII.

A method of feeding calves with a mixture of hay-water, and a little milk, whereby four or five calves may be reared in one season, with the milk of one cow only.

A Premium of a gold medal having been offered by the Society to the person, who could produce an account of the best method, verified by experiments, of rearing black cattle without milk, the following appeared in the Essays on Agriculture, published by the Dublin Society, about thirty years since, it may help those persons to some serviceable hints, who may intend trying the method proposed, as this proves it may be done with but very little milk.

To make the hay-water, put into a small churn, or can, or earthen vessel, provided with a close cover, as much fine, sweet hay, cut once or twice, as will fill up the vessel; when laid in, and lightly settled with the hand, fill up the vessel with clean boiling water, and immediately cover it

it close. In two hours time, the water will be so impregnated with the strength and virtues of the hay, as to afford a brown, rich, sweet liquor, like alewort, or strong tea, which will keep good two days, even in Summer, either poured off, or standing in the vessel, and is to be used in the following manner.

In three or four days after a calf shall have been dropped, and hath been purged by sucking the cow's beastings, make up the usual and proper quantity of liquor allowed for a meal; at first, with three quarts of milk, and one of the hay water; then half and half of each; after that, two-thirds of hay-water, and one of milk; and last of all, a fourth part of milk will be sufficient.

The mess is to be given to the calf milk-warm, at morning and evening, containing about three quarts to a meal, at first, and rising to about four quarts, by the end of the month.

During the second month, besides the like quantity given him at each meal, consisting of three quarts of hay-water, and one of milk, tie up a little bundle of sweet hay before him, which he will come to eat by degrees; or if the weather be favourable, as in May, turn him out to graze, into a good kind piece of land, that is well sheltered.

This

This diet may be continued in the third month of his age ; only towards the latter end of it, when he grazes heartily, less than a quart of milk, with hay-water, will be sufficient for a mess ; or scummed milk, or fresh butter-milk, may serve instead of new milk ; from the third month he will hardly need any hand-feeding ; if he should, one meal a day will suffice, and that of hay-water only, which need not be warmed in Summer time.

Great would be the advantages to these kingdoms, but especially to Ireland and Scotland, if this method of rearing calves were generally followed ; poor cottagers usually kill their calves, especially those that drop early in the year, for want of milk, which is then absolutely necessary to maintain their families : many calves are lost, when their dams are sickly, or happen to die, and most of the calves that are fed in the common way, by a little milk of their dams at first, and afterwards by butter-milk, and thin pottage, made of bean-meal, pea-meal, or oat-meal and water, grow tod-bellied, and stunted, and either die of themselves, or if reared, are worth very little for either the dairy or the butcher.

From these causes, many thousand calves are yearly lost, which by the method here proposed, might be saved, to the great advantage of many

S

poor

poor farmers, and to the encrease of our national stock and trade.

As we now cultivate so many sorts of grasses by themselves, as lucern, burnet, &c. perhaps the hay-water from some of these may be found more nourishing, than from the confused mixtures of so many sorts as will be found in common hay.

It will suffice, and that of hay-water only, which need not be warmed in summer time.

Great would be the advantages to this kind of rearing, but especially to Ireland and Scotland, if this method of rearing calves were generally followed; poor cottagers usually kill their calves, especially those that drop early in the year, for want of milk, which is then absolutely necessary to maintain their families: many calves are lost, when their dams are sickly, or happen to die, and most of the calves that are fed in the common way, by a little milk of their dams at first, and afterwards by butter-milk, and thin porridge, made of bean-meal, pea-meal, or oat-meal and water, grow too-bellied, and floundered, and either die of themselves, or if reared, are worth very little for either the dairy or the butcher.

From these causes, many thousand calves are yearly lost, which by the method here proposed, might be saved, to the great advantage of many poor farmers.

CHAPTER XXIII.

Methods to improve barren lands, by planting various sorts of trees, but particularly larches, firs, poplars, and willows; the advantages of bark-ing trees, while standing, to encrease the solidity, strength, and duration of timber, proved by experiments.

THE cultivation of timber-trees is one of the most material points in agriculture; it is an object the most worthy attending to, by every landed proprietor, if his estate consists of large quantities of land, which neither the grazier, nor the farmer will rent, on account of its being such as will not produce grass; so hilly, that the plough cannot be admitted; or so boggy, that no cattle can feed upon it; here planting of trees is the only resource, and very fortunate it is for us, that nature has been so bountiful in her variety of productions for our use, that hitherto there has been no sort of land, whether sand, gravel, bog, or even rocks, but what if there be but three or four

inches of earth on its surface, some sort of tree will flourish, and thrive upon it ; for from all experiments hitherto made, there is some species of trees to be found, which may be cultivated to advantage, upon every sort of land ; therefore the occasion of its barrenness is in the owner's inattention, and not in the land itself.

Instances of trees thriving on such land will carry more persuasion than any argument that I can use, and therefore I shall mention a variety of places, where ocular proof may be had of my assertion.

Hearing affects the mind by slow degrees ;
The man is warm'd at once by what he sees.

DRYDEN.

Beyond Claremont, in Surry, are several plantations, in clumps, of various sorts of trees, made by the late Duke of Newcastle, and particularly Scotch firs, which fully prove the possibility of their thriving on such barren sandy ground. The plantation of such various sorts of trees, as Mr. Hamilton, of Painshill, has made, in the same neighbourhood, is still a greater proof. The thriving condition also of the Scotch firs, planted by the late Duke of Cumberland, in Windsor-park, shews that such land as that, or rather sand, will not fail
to

to amply repay its cultivator; this proof I lay the greatest stress on, because I saw them planting, and had an opportunity of inspecting the soil, which is a very dry sand.

The plantation made by his present majesty, within Richmond park, adjoining to the Portsmouth road, is more particularly worth examining, as great variety of sorts are there planted, and afford a person an opportunity of seeing which kinds flourish the best, on that land, which is absolutely gravel. The road from Dunstable to Market-Harborough, gives many specimens of thriving plantations, on such barren sands as would not afford any vegetables for cattle, and were entirely useless; on Wooburn sands, in several places in Northamptonshire, (and I could mention many others, at more distant parts of the kingdom,) there arose plantations whose owners have in a few years been amply rewarded for their labours. Even oaks have thriven very well on such sands, near Antwerp, where many thousands are planted; and on that range of hills, near Watte, in Artois, lately belonging to the college of English Jesuits, they particularly flourish though the soil be very thin, and underneath contains gravel; many other kinds also, and especially birch, thrive there. Where a gentleman has very large tracts of land, I would advise him to plant several sorts at first,

and then in a few years he will be a better judge with which to increase his future plantations. I believe that he will frequently find the larch tree to succeed better than the Scotch fir, on very dry situations. I have been told the turneps sown in a plantation of firs, on sandy ground, has proved of great service in defending them from the sun in Summer, and the violent winds in Winter; it is so easy and cheap a method, that it certainly deserves a farther trial.

As the ground where the firs are planted, must either have been digged or ploughed to receive them in Spring, if in two months after it be well worked over with a strong hoe, it will be sufficiently stirred for the turnep seed, and the hoeing will be of great service to the firs, in lightening up the earth to enable it to attract the dews; the future hoeings of the turneps will still assist them.

Though this crop cannot be equal to some others, yet there is no fear but it will repay the expences; at Spring it must be drawn off for cattle; if it be found to answer, it may be repeated during another year or two.

Boggy ground may very advantageously be planted with either oziers for basket-makers, or with willows and poplars. Of the willows, the Norfolk, or Dutch sort, is the best to plant; their profit is mentioned in page 161; it is proved to
amount

amount to above 700l. in thirty years, from an acre. The Carolinian and Lombardy poplars, and the last in particular, will without doubt, exceed them in profit, but at present there are not sufficient plantations of them in England to refer to, though there be several of the latter in France, whose growth is very extraordinary.

From all those different plantations, some profit may be received in few years ; from the aquatic in five or six, as they will then want thinning, to give the others room.

From the larches and firs (some faggots excepted) much gain cannot be made until fifteen or twenty years shall have elapsed. The expence of making these plantations is not great ; the firs and larches may be raised for about 5s. per thousand, as proved in page 163 ; in the second year many of them may be transplanted from their seed bed, and after standing one year in another bed, at a wider distance, to gather strength, they will then be fit to be planted where they are to remain ; the expence and the hazard of planting them at this age, will be much less than if they were larger.

Though Mr. Evelyn, that great patron of planting, and Vitruvius, have mentioned the method of stripping trees of their bark, to encrease the solidity, strength, and duration of their timber ;

yet it has never come into general practice, nor has any one, I believe, in this country gone through experiments to ascertain the truth of it, equal to those made by the ingenious Mr. De Bouffon, of the Royal Academy of Paris; they cannot, therefore, but be necessary to be known by every person, who has concerns in timber; here follows an account of the experiments he made.

In the beginning of May he caused six oaks which were about seventy years old, thirty or forty feet high, and from five to six feet in girth, to be stripped of their bark; and had six others of the same kind, and which grew in the same soil, near them, felled; he, then, put them under a shed, to dry in their bark, till he should have occasion to compare them with those which had been barked.

He had one of the barked trees cut down the 30th of August, some in October, and the rest the May following, and caused them all to be sawn into pieces of fourteen feet long, and marked centers on them at each end; he, then, drew squares of six inches and an half, on all of them, and had the four faces sawn away, so that each of them became a beam of fourteen feet, and by careful planing, exactly six inches square; four of each sort were broken, to find their strength.

The

The beam of the tree cut down the 30th of August, weighed 242 pounds, and broke under the weight of 7240 pounds.

That of the tree in its bark, compared with it, weighed 243 pounds, and broke under the weight of 7320 pounds.

The beam of the second barked tree weighed 249 pounds, and broke under the weight of 8362 pounds.

That of the tree in its bark, compared with it, weighed 236 pounds, and broke under the weight of 7385 pounds.

The beam of the third, which had lain exposed to the injury of the weather, weighed 258 pounds, bent more than the second, and broke under the weight of 8926 pounds.

That of the tree in its bark, which he compared with it, weighed 263 pounds, and broke under the weight of 7420 pounds.

The fourth, which he always thought the best, weighed 263 pounds, and broke under the weight of 9046 pounds.

The tree compared with it, weighed 238 pounds, and broke under the weight of 7500 pounds.

Of the sap of one of the barked trees, he caused to be made several bars of three feet long, and

and an inch square, five of the most perfect of which he chose out for breaking.

The 1st.	weighed $23\frac{5}{32}$ ounces,	and broke under 287 pounds.
2d.	$23\frac{6}{32}$ oz.	291 $\frac{1}{2}$ pounds.
3d.	$23\frac{4}{32}$ oz.	275 pounds.
4th.	$23\frac{28}{32}$ oz.	291 pounds.
5th.	$23\frac{14}{32}$ oz.	291 $\frac{1}{2}$ pounds.
The mean weight	$23\frac{11}{32}$ oz.	287 pounds.

Having made the same trials on several bars of the sap of one of the unbarked oaks, the mean weight was $23\frac{2}{32}$ ounces, the mean charge 248 pounds; afterwards, having treated several bars of the heart of the same oak, in the same way, the mean weight was $25\frac{10}{32}$ oz. and the mean charge 256 pounds.

This proves that the sap of barked timber is stronger than even the heart of oak, though not so heavy.

To be still more certain thereof, he caused to be made of the sap of another of his barked trees, three small beams, of two feet long, and an inch and half square.

No. 1. broke under 1294 pounds.

2. broke under 1219 pounds.

3. broke under 1247 pounds.

Making, at a mean, under 1253 pounds.

But

But of several like beams, made of the sap of another unbarked tree, the mean weight of the charge was no more than 997 pounds, which produces a still greater difference, than in the foregoing experiments. Of the sap of another barked tree, dried standing, he caused to be made several bars, of two feet long, and one inch square, of which he chose six, that at the mean weight broke with the charge of 501 pounds; but it required no more than 353 pounds mean weight, to break several beams of the sap of an unbarked tree, of the same dimensions, and but 379 pounds mean weight, to break the heart of an unbarked oak.

Lastly, of the sap of one of the barked oaks, he caused to be made several bars, of a foot long, and an inch square, among which he found seventeen fit for trial; they weighed $7 \frac{1}{2}$ oz. mean weight, and to break them there required a charge of 798 pounds; but the mean weight of several bars of the sap of one of the unbarked trees, was but $6 \frac{2}{3}$ oz. and the mean charge requisite to break them, but 629 pounds; the mean charge requisite to break the heart of oak in bark, by eight different tryals, came out about 731 pounds.

The sap of trees, barked and dried standing, is therefore considerably heavier than the sap of ordinary

dinary wood, and much stronger than even the heart of the best wood.

It is, therefore, certain, that the timber of trees barked, is more hard, solid, weighty, and strong, than the timber of trees felled in their bark; and thence he thinks it may be concluded, that it is also more durable.

The Paris pound is to the London avoirdupois, as 109 to 100; and the Paris foot, nearly as 16 to 15.

A Table, shewing the mean charges required to break pieces of wood, of the following length and thickness, deduced from a multitude of experiments.

Length	4 inches	5 inches	6 inches	7 inches	8 inches
Feet	pounds	pounds	pounds	pounds	pounds
7	5312	11525	18950		
8	4550	9787 $\frac{1}{2}$	15525	26050	
9	4025	8308 $\frac{1}{3}$	13150	22350	27750
10	3612	7125	11250	19475	23450
12	2987 $\frac{1}{2}$	6075	9100	16175	19775
14		5300	7475	13225	16375
16		4350	6362 $\frac{1}{2}$	11000	13200
18		3700	5562 $\frac{1}{2}$	9425	11487 $\frac{1}{2}$
20		3225	4950	8279	
22		2975			
24		2162 $\frac{1}{2}$			
28		1775			

A Table

A Table of the specific gravity of several sorts of wood.

Specific gravity.			Weight of a cube foot	
			lbs.	oz.
Thorn, - - -	87	— —	54	6
Crab-tree, - -	85	— —	53	2
Quince-tree, -	83	— —	51	14
Mahogany, - -	82	— —	51	4
Plum-tree, - -	80	— —	50	0
Holly, - - -	80	— —	50	0
Ash, - - - -	76	— —	47	8
Berberry, - -	76	— —	47	8
Nut-tree, - -	76	— —	47	8
English Oak, -	75	— —	46	14
Beech, - - -	74	— —	46	4
Elder, - - -	73	— —	45	10
Pear-tree, - -	73	— —	45	10
Mulberry, - -	71	— —	44	6
Walnut, - - -	69	— —	43	2
Yew, - - - -	67	— —	41	14
Maple, - - -	66	— —	41	4
Yellow Deal, -	63	— —	39	6
Cherry, - - -	61	— —	38	2
Norway Oak, -	60	— —	37	8
Sallow, - - -	59	— —	36	14
Sycamore, - - -	59	— —	36	14
Elm, - - - -	50	— —	31	4

N. B. All the woods were very good of the sort, except the elm, and all very dry; the measure is English, and the weight Avoirdupois.

CHAPTER XXIV.

*Hints to improve the flavour of the London milk,
by the use of malt-dust, burnet, lucern, carrots,
and cabbage-turneps; testimonies of their effects
in producing plenty of rich milk.*

THE watery flavour of the London milk, is insipid to every one who has been used to eat milk and cream, produced by the country farmers, at some distance from town: As the land, in general, which the cows feed on here, is good, and most of the cattle large, fine, not stinted for food, and in such order, that in a little time after they become dry, they are fit for the butcher, they ought, doubtless, to yield rich milk; from small lean cattle, poorly kept, milk is never known to be good; daily experience convinces us what a rarity it is to find any milk in London well tasted, the cream thick and rich; it must therefore be owing to something particular that the cows feed on, nor can it be imputed to any thing so much as to the

excessive quantity of grains,* given to them by the cow-keepers, which cause it to have a flavour, so weak, and yet so very different from the taste of good milk, mixed with water, (as many persons think this to be, and perhaps it is sometimes the case) but if the milk had been originally rich and well-flavoured, such an adulteration would be soon found out, and cause the milk-feller, to lose his business.

It is the custom of several experienced farmers, to give their cows malt-dust, especially in the Winter, which dust is not the malt-kiln dust, which should be reserved for a top-dressing for corn; but the germ of the barley, which sprouts out while it is making into malt; after the malt has been dried on the kiln, and passed over a wire-screen, it falls through, and separates from the malt; this dust is of a very warm, dry, nourishing quality, causes the cows to drink freely, and yield a large quantity of excellent milk.

* It is, however, but just to mention, in this place, a very singular circumstance which pleads in favour of grains. In 1761, Mr. Richard Wood, farmer and brewer, at Swithbottom, near Croydon in Surry, sold to a butcher in that neighbourhood, two horned sheep, excessively fat, and whose carcases weighed 36 stones; they were fed with grains. Great sums of money were won and lost by disputes about the weight. One butcher, in particular, lost four times the value of the sheep.

I can-

I cannot, therefore, but think, that if the cows had some of this malt-dust constantly given them with the grains, it would correct their bad quality, and greatly contribute to take off the watery flavour that the London milk, in general, has; this is practised in various parts of England, by many sensible farmers, though it be not yet known enough to be a general custom.

In page 114, of the 1st vol. of the *Museum Rusticum*, it is strongly recommended by a Berkshire farmer, near Abingdon, who says, "It was many years before I thought of giving my malt-dust to my cows, but when I did, I found it answer to admiration; it made them give much more milk, which was of a better quality, had no bad taste, and made excellent butter."

My method is to give each cow half a peck in the morning, when she has her first meal, and as much at the time of milking in the afternoon: for this purpose I every year, at a cheap rate, purchase a considerable quantity; for my own malt-house does not yield enough to supply my number of cows, and very few of my neighbours, as far as I can understand, apply it to this use.

My cows look sleeker, are in better order, than ever they were before they were thus managed; and when they fall off their milk, they fatten kindlier than cows in general do.

The

The success I met with, when I first tried this method, induced me to continue the practice.

If the cow-keepers would also be persuaded to cultivate some few acres of land, with burnet, lucern, cabbage-turneps, and carrots, they would have a constant succession of green fodder for their cattle; they would save the expence of purchasing so much hay, for which they must frequently pay a high price, and greatly improve the flavour and quantity of their milk; they would keep their cattle at less expence, than by their present practice, put so much certain gain, yearly, into their pocket, and oblige their customers with a better commodity.

To prove this assertion, let any one, in Winter, pitch on two cows, which give an equal quantity of milk, let one be fed on hay, and the other on some of the above vegetables, and he will soon find convincing proofs, to engage him to continue the practice; or let him, after measuring the milk of any one cow, alter the food for a week or ten days, and then take an account of the quantity of it again.

Another motive why a London cow-keeper should have some few acres of carrots, is, that the large well-shaped ones may be sent to market, and the tops and the others serve for his cattle.

T

Suppose

Suppose that each foot square produces one large carrot, fit for sale, at the price of half a farthing a piece, which is very moderate in Winter, an acre will then sell for 22*l.* 13*s.* 9*d.* and the tops, and the ill-shaped ones, will be left for the cattle, and nearly pay the expences of cultivating them, but in general they will sell for double that price.

To confirm also what I have proposed, I have inserted the testimonies of several modern authors, on the great efficacy these vegetables have had, in regard to making cows yield a larger quantity than usual of well-flavoured milk, mention also, is made of the quantity of green fodder that an acre of ground, cultivated with these vegetables, will produce ; and hence is perceived how much less land is wanted to maintain their cows, than in the usual manner, from natural grass and hay.

The common, erroneous observation, made on the crow-foot, which abounds in many meadows, and being vulgarly said to make the butter yellow, retains the appellation of the butter-flower, seems to have been refuted by the ingenious Mr. Stillingfleet, author of that well-known, and valuable treatise, entitled Observations on Grasses, who says, “ this I believe is all a mistake, for I never could observe, that any part of that plant was touched by cows, or any other cattle.”

He

He also says, "that Linnæus observes, Fl. Lapp. page 195, that it was believed by some people, that the marsh-marigold made the butter yellow, but he denies that the cows ever touch that plant; yet he thinks that all kind of pastures will not give that yellowness;" then he observes, that the best and yellowest butter that he knows, and which is preferred by the dealers in those parts, to all other butter, was made where the cow-wheat grew in greater plenty, than he ever saw it in any where else. This shews how very incurious the country people are, in relation to things they are every day conversant with, and which it concerns them so much to know.

Testimonies in favour of Burnet.

In the 6th vol. of the Museum Rusticum, page 28, a gentleman has given the following account of burnet:

"Rocque mowed his this year and last; I saw his men thrashing it in the field, and they told me there was near, if not quite, five quarters of seed per acre; as soon as I had collected what seed I wanted, I mowed part, and then turned four cows and two horses into the field; I observed the cows ate very freely, and they preferred the lower part of the plant, as being most grass or leafy; the

horses ate down the stalks and all, without any distinction ; though I observed the horses did not seem to like it at first so much as the cows.

From hence I was satisfied, that horses and cows would eat it, and as to the effect it had on the cows, I must tell you, that after they had been two or three days in the burnet, my wife desired to know where the cows were feeding, for she observed a finer flavour in the butter and cream than usual ; indeed I had observed it myself, but would not mention it till I had seen if it was noticed by others."

In vol. 5. page 7. "This spring his cows fed on the burnet, and he assured me, that they not only eat it very greedily, but it encreased their milk in quantity, and bettered it in quality."

The following is an account from Christopher Baldwin, esq; of Clapham, page 891, of the 6th vol.

"Burnet has strongly the taste of cucumber, and I was fearful it might give a disagreeable taste to the milk ; it therefore gave me great pleasure to find, in about four or five days, that the quantity of milk was not only much encreased, but the flavour of the cream much superior to any I had ever had before, or ever tasted from cows fed upon the richest meadows."

and

And page 763, " Being much vexed at these idle tales, told about, so much to the prejudice of this (as it appears to me) excellent plant, I determined to put it to as fair a tryal as I possibly could. Accordingly, I ordered in four cows, which were in very good feed, on natural grass, and had besides a large truss of oat-straw, put in their cribs every night, notwithstanding which they gave very little milk, and indeed were almost dry. These cows, I declare, had not been in the burnet above six days, before they gave much more than double the quantity of milk; nay, was I to say, three times the quantity, I know I should not exceed the truth. The milk is exceeding fine, and free from all bad taste; and further I must observe, that they soon began to leave half their straw in the cribs; so that they are now served with only half the quantity they had before. My land is poor, dry, upland gravel; there are millions of acres in this kingdom of better land, that do not fetch two shillings and six-pence an acre. What a scope, therefore, is this for improvement!"

Mr. Rocque says, page 180, vol. 4. " An acre will produce upwards of three loads of hay, and above forty bushels of feed. I have cut six rods and weighed it, seed and all; it weighed eleven hundred and fifty pounds."

Testimonies in favour of Carrots.

From the 1st vol. of the Museum Rusticum, page 330, "I find also carrots excellent for encreasing the milk of cows, especially in Winter time, and early in the Spring, when there is a scarcity of grafs; and the milk they give, when they feed on them, has no bad taste; but the butter made of the cream, is generally a little higher coloured, being a full yellow; yet this is no inconvenience, as it is not worse in quality than that which is made when the cows feed in the Summer months, on the sweet meadow-grafs."

The best account hitherto proved of the value of carrots for cattle, is given by Mr. Billing, who in the year 1763, feeding his whole dairy of 35 cows on them, gained the premium for sowing thirty acres, and twenty-four acres in 1764, as described in the 5th vol. of the Museum Rusticum, page 30; this was attended with so little trouble, as that sometimes it was only ploughed up for them. "Mr. Billing turned his dairy of cows, and flock of sheep on this land, after the ploughing, without any other trouble or preparation, and had all the reason in the world to be pleased with the event. Both took readily to eating the carrots, though he thinks the cows most so.

These

“These last, not only all of them gave more milk than usual, at this time of the year, but many of them continued to give milk, which would, with such turneps as he had then to give them, have been nearly dry: the butter made was likewise much better than from turneps: besides this, the land received great and manifest improvement from the state of the cattle, of which he found the benefit apparent in the succeeding crop.”

On some of his land he had from twenty-two to twenty-four cart-loads of carrots, per acre, but from all the thirty acres five hundred and ten loads, which are seventeen loads on an average, and these he found equal in use, and effect, to near one thousand loads of turneps, or three hundred loads of hay.

The Society of Berne, in Switzerland, have paid Mr. Billing the compliment, of translating his treatise on carrots into French, and inserting it in their Memoirs, as a very valuable improvement, for producing plenty of milk from sandy soils.

Testimonies in favour of the Cabbage-turnep.

This plant has only been cultivated for the use of cattle, within these three years; the Society having offered premiums for raising the turnep-

cabbage, some seeds of this sort, were accidentally mixed with the other, and upon tryal, this is found to withstand the severest frosts, without suffering any damage, and even vegetate and greatly encrease the size of the turnep during the Winter, whereas the other sort, in a long frost, will rot.

It was first cultivated by Mr. Reynolds, of Adisham, in Kent, and imagined to be a new species; but the two sorts have been distinctly known by botanists, as Gerard's Herbal plainly shews, he having given a description and cuts of both.

The short time it has been cultivated for cattle, prevents me from bringing many proofs of its excellence, but those related by its introducer, seem very satisfactory.

Half an acre maintained six milch cows, a heifer, and a bull, for sixteen days, in May, with the foliage only, and produced one hundred and six pounds of butter, and the roots afterwards fed one hundred and sixty-two sheep for twenty-one days.

A shepherd, with a four-pronged fork, can in three or four hours take up as many, as will maintain 250 sheep for a whole day.

The seed may be sown from April to August, and the plants will want transplanting about six weeks

weeks after, and are about eight months arriving at their full growth; in May he has had the roots weigh four and five pounds each; and as an acre, at two feet square, will contain 10890 plants, at five pounds each, it will produce 54450 pounds of solid food, besides the leaves, or about twenty-four tons.

Instead of planting them at exactly two feet square, it will be better to plant the rows only eighteen inches asunder, and leave an interval between every two rows, of two feet and half, which will give more room for earthing them up,

Testimonies in favour of lucern.

This very valuable plant, from its excellence for the support of cattle, has been cultivated in almost all countries, since it was first discovered in Media, by Darius, during his Persian expedition, according to Pliny.

Medica externa etiam Græciæ, ut à Medis advecta per bella Persarum quæ Darius intulit. Hist. Natural. Lib. xviii. c. 16.

By his encouraging the cultivation of it in Greece, it came to be known in Italy, even before the times of Cato and Virgil, and since that period, it has spread itself into most parts of the globe, almost from one pole to the other.

Mr.

Mr. Harte, who has obliged the public with a very useful essay on this plant, with an intent to have it cultivated more advantageously by transplantation, gives this farther account of it, page 17.

“There is no doubt, but that its culture continued upon a flourishing footing in Italy, till the irruptions of the Goths and Vandals, and then it was destroyed; or, to speak more properly, allowed to perish by the neglect and ignorance of such savage invaders*. But as Spain suffered much less from the inundation of these barbarians, than Italy did, and as the Moors were all lovers of plants, and to a certain degree herbalists, the culture of lucern was faintly kept alive there, like a vestal fire; and probably the sort we now have is a descendant from Columella’s lucern, who removed it from Italy, and naturalized it in Andalusia, where that excellent cultivator was the cause of preserving the plant in question, more or less genuine for many ages, much in the same manner as the purity of the Greek language was kept alive, *plus minus*, for several centuries, by the colony at Marseilles.

* Le Vinti Giornate dell’ Agricoltura, di M. Agostino Gallo. 4to in Venet. 1569, p. 35.

From Spain, this Medica returned to Naples, and thence to Volterra, and Scandiano, being held in much esteem every where, but particulatly near cities, where land is scarce, and dear.

One Hercules Cuccho, a nobleman, fond of husbandry, first raised it with success in the Venetian state, on this its second appearance, about the year 1550*. Not long afterwards the archbishop of Montigli (who was also bishop of Viterbo) carried a parcel of the seeds to Rome; so that the culture of lucern soon spread with rapidity over good part of the ecclesiastical state, and all Lombardy†.

In some few years, a count, Fabio, taught the French to raise lucern round Paris; infomuch, that in Henry the Fourth's time, it was as common (at least in the fouthern parts of France) as broad clover in our fields at present‡.

About the year 1578, this plant found its way into Germany||, and was cultivated in one of the loveliest parts of the whole empire, namely, the lower Palatinate. At the same time the fame of

* Le Vinti Giornate, 11a.

† Herbario di Castore Durante, fogl. in Roma, 1585. p. 279.

‡ De Serres, Theatre d'Agriculture. dedié au Roi Henri IV. fol. 166o.

|| Conradus Herebach de re Rustica, 8vo. Colon, 1573.

it reached England*, where all people admired it. Our ancestors in the reign of Elizabeth, threw it into their cool tankards, and called it “sops in wyne,” and some few had the courage to make essays towards cultivating it; but their attempts were languid, and as I conclude, unsuccessful, notwithstanding they had the practice of the antients to guide them, in the books de Rebus Rusticis.

At length Hartlib attempted to excite the attention of the public afresh, in the year 1650. He did as much, circumstances considered, as a man of his great genius could do; but as there was no method of raising it, at that time, generally known, but the common practice used in cultivating clover, it, of course, miscarried in our climate.”

From this progressive state of it from Asia to Greece, from Greece to Italy, from Italy to France, and from France to England, it affords an opportunity, from a great variety of authors, to collect their opinions, which give convincing proofs of its great efficacy in causing cows to yield plenty of milk.

Didymus de Medica.

Lactantes boves cytiso aut medica nutriemus :
sic enim connutritæ plus lactis habebunt. Geopon.
lib. 17. c. 8.

* Barnaby Googe's whole Att of Husbandry, 4to. Lond. 1758.

Matthiolus.

Hæc quondam in universa Italia ferebatur ad pecorum pabulum, et uno tantum fatu plus tricenis annis perdurat. Eadem, ut quidam referunt, abundat in Hispania, ubi magna admodum cura colitur ad jumentorum et pecorum pabulum; eamque alfalfam vocant, nomine ab Arabicis corruptè mutato. Matthioli in Diosc. p. 330. fol. Ed. 2. Lugd. 1562.

Barnaby Googe.

Among all sorts of fodder that is counted for the chieft, and best, which the people of old time, and the Italians at present, call Medica. No better food can be devised for cattle, wherewith they will better feed, or sooner rise. Whole Art of Husbandry, 4to. black letter, 1578.

Dodoens.

This is also an excellent fodder for oxen and kine, and for the same purpose was used to be sown by the antient Romans in old time. Herbal. lib. iv. p. 360. fol. 1600.

Samuel

Samuel Hartlib.

There is at Paris, likewise, another sort of fodder, which they call *la lucerne*, which is not inferior, but rather preferred before *saintfoin*. Every day produces some new things concerning it, not only in other countries, but in our own. Lucern procures abundance of milk to cows. Legacy, 1650. p. 4.

Worlidge.

Lucern is commended for an excellent fodder, it is good for all kinds of cattle, but agreeth best with horses. It feedeth much more than common hay; so that lean beasts are suddenly fat with it, and causeth abundance of milk in milch beasts. System of Agriculture, fol. 1668, p. 28.

M. Du Hamel.

On voit quel avantage il y a pour ceux qui ont des terres propres à produire de la lucerne, de pouvoir faire dans une même année, trois et même jusqu'à six récoltes d'un foin excellent, qui convient à toute sorte d'espèce de bétail, chevaux, boeufs, vaches, moutons, qui tous le mangent en verd et en sec. Je puis assurer d'après mes propres

pres experiences, que ce fourage encore verd et coupé avant la fleur, a retabli de jeunes chevaux qui magrissent, sans qu'on peut en sçavoir la cause; et que les vaches, qui en sont nourries donnent quantité d'excellent lait. *Elemens d'Agricult. tom. ii. p. 133.*

Auteur Anonyme.

Mais que dirons nous si les œconomes modernes nous assurent, que d'un arpent de lucerne bien cultivée, on peut nourrir quatre jusqu'à cinq boeufs? *Dissertation sur l'Agriculture, à Zurich, 1761.*

The quantity of fodder produced from a single acre, is surprising, and cannot be equalled by any vegetable hitherto cultivated, for the use of cattle, as the following accounts prove:

Mr. Harte, the first year after transplanting, received from one acre about eight tons, which were sufficient to keep two coach-horses near five months, and fatten a small heifer besides.

Mr. Eyma, a correspondent of Mr. Du Hamel, had at one cutting, from a single acre, above six tons, and twenty tons from less than three quarters of an acre; and he himself had forty tons green, which made ten tons of hay; therefore, from the
great

great waste in drying, it is much more profitable to eat it green.

Mr. Baldwin also, who has cultivated it in rows, at only twenty inches distant from each other, which is but half the space Mr. Harte recommends, has received the third year above fourteen tons from four cuttings, part of which was drilled, and part transplanted.

From an acre of broad-cast, cut July 15th, near five tons and a half, and two more crops were produced; from four acres and a half, seven years old, eighteen loads of hay were produced; and forty-eight loads of hay were also produced from another field of eleven acres.

A coach-horse will eat ninety pounds in twenty-four hours; at that rate, an acre will feed five horses for twenty-one days.

There are now three methods practised in the cultivation of this plant; broad-cast; sowing it in drills; and raising it in a nursery, and afterwards transplanting it; each of these methods has its advocate; at page 121 of this work, are directions on the most profitable way to cultivate it.

CHAPTER XXV.

A proposition of electrical experiments to destroy insects on trees, and particularly on plants in stoves and green-houses: an account of a newly-invented fumigating bellows, calculated to kill all sorts of insects.

THE destruction of plants, fruits, and flowers, caused by various sorts of insects, is so great, that there is no one part of the vegetable œconomy, which stands more in need of the assistance of the naturalist, and the philosopher, to discover methods to prevent the fatal consequences attending trees and plants, when attacked by them; in stoves especially, from the natural warmth of the place, they encrease with such an amazing rapidity, after they have once gotten possession, that every plant is infected by them almost instantaneously.

The sorts peculiar to stoves are a kind of brown lice, which adhere to the leaves of the pine-plants, and which, without doubt, are supported by ex-

U

tracting

tracting their sap ; for if they be not soon destroyed, the plants by degrees dwindle away, and the fruit never come to perfection ; this sort also, is frequently found on orange-trees, as well as myrtles, and other exotics, which never thrive while they are attacked by it.

On the pine plants also, are white flies, which generally are found in great quantities on their stems, just above the earth ; but these are not of so bad consequence as the others.

On cucumbers, is a black fly, and when in a stove, there frequently appears on them a mildew, which, on examining, will be found to contain insects ; in the same manner, the french beans are attacked ; on strawberries there is a small white fly, and the leaves, and the earth in the pots, are constantly covered with a white dust ; but sometimes on them (and particularly on roses) a larger insect appears, of a very lively bright green colour, and entirely covers the stems and buds of the roses ; melons particularly are infested by a small red spider, which frequently destroys the whole crop, and almost every plant has a peculiar insect which feeds upon it, and greatly weakens it, if it does not entirely kill it.

The usual method of destroying these various insects, is by watering the plants, and then strew-
ing

ing on their leaves brimstone, or *tobacco dust; if done when they first appear, it sometimes takes effect, but not always; and if lying too long on the leaves, greatly stops the perspiration of the plant: I think an easier, quicker, and more certain remedy may be applied by means of electricity.

It has been frequently proved, that phials being filled with various sorts of strong-scented drugs, and applied to the electrical machine, the odours of such drugs have passed through the pores of the glass, and persons being then electrified, have retained the smell of them for many hours afterwards.

On these principles, it seems, that if the phials be filled with brimstone, pepper, snuff, tobacco, or quicksilver, which are all known to cause immediate death to all insects that touch them, that plants infected by them, may be instantly cleared of them; that even quicksilver is not prejudicial to trees, I have proved by boring holes in the

* Monsieur de la Nux, of the isle of Bourbon, a correspondent of the academy of Paris, has advised Mr. de Reaumur to use tobacco, either green, or in rolls, as a preservative against weevils. These animals, (animaes) apparently liquorish, will come to the tobacco from all parts, and, having eaten of it, certainly die.

stem, and filling them up with quicksilver, to destroy insects; but if this other method will answer, it is done with much less trouble, and more expeditiously, and to shew that the electrical shock does not hurt plants, I shall relate the following experiments.

The abbé Nollet, an ingenious Frenchmnn, relates, that he took two garden-pots, filled with the same earth, and sown with the same seeds; he kept them constantly in the same place, and took the same care of each, excepting that one of the two was electrified for fifteen days running, for two, three, and sometimes four hours a day; this pot always shewed its seeds raised, two or three days sooner than the other, a greater number of shoots, and those longer, in a given time; which made him believe that the electrical virtue facilitated the growth of plants.

I have also been informed, that myrtle cuttings have been made to shoot very freely by being electrified.

The following is another experiment tried on seeds:

An equal quantity of mustard and cress-seeds was put in four glazed earthen pots, June 2d. filled with the same kind of earth, and watered equally each day. Two of the pots were electrified four times a day, for a quarter of an hour each time;

time ; June 4, in the morning, the electrified seeds were larger and more tumid than the other, and while they were electrifying, the outer membrane or fecundine of several of the seeds burst open, and the germ came in view, and continued visibly unfolding, having grown a full tenth of an inch during those fifteen minutes.

June 6th, which ended the experiment, upon comparing the pots, the electrified seeds which did grow, were more in number, and shewed much greater degrees of life and vigour, having a more lively fresh green colour, and were more pregnant and replete with vegetative juice.

But as to the acceleration of their growth, there was not so great a difference as was expected ; but this may be plainly accounted for from the foregoing observation : thus, the body of the seed, while electrifying, being strongly saturated, agitated, and expanded by the ætherial fire, which becomes dissipated, after ceasing to electrify, the cold damp air thereupon entering the body of the seed, now open and destitute of either, checks the tender nascent fribillæ, and keeps them from developing, and thereby retards their growth.

This shews, that to render the operation and effects of æther more efficacious upon animals and vegetables, its application ought to be continued for a considerable time, and much longer on

vegetables, than animals. So that had the seeds been electrified both night and day, without intermission, for two or three days and nights, there is no doubt but they would have surpassed the others, as much in the acceleration of their growth, as they did in all other respects; nor was this experiment made with all the accuracy necessary, and therefore is not proposed as decisive.

Q U E R I E S.

I. If all vegetables that grow in pots, or boxes, be daily and frequently electrified, will they not have a better circulation, growth, and nutrition; and will not their flowers, fruit, seed, &c. be more perfect than those not electrified?

II. Although such vegetables and trees as are rooted in the earth, cannot be made to retain, or confine the ætherial fire, but may be determined so as to produce strong instantaneous motions and concussions therein; will not the proper application of such shocks still contribute to their vegetation?

III. Will not the electrifying of seeds, both before the sowing and after, greatly promote their vegetation?

IV. Will not the cuttings of plants, after they shall have been some small time planted, be made to strike root sooner by electrifying?

As

V. As various drugs are often put into the phials of the electrical machine, suspended at the end of the iron bar, when sick persons are electrified; if such ingredients be put into them, as pepper, snuff, tobacco, brimstone, quicksilver, &c. whose efficacy are well known, in killing insects; would not therefore the insects which had fixed themselves on the plants be immediately destroyed, provided that such plants were to be electrified?

VI. Cannot fruit-trees against walls that are attacked with insects, be relieved from them, and the circulation of their sap be greatly accelerated by such relief? their stagnation is the cause of their weakness, and that induces the insects to attack them.

If trees, or plants, be in pots, a large number may be electrified together, and receive the whole electrical force, by being placed on a table, with the feet of it resting on cakes of rosin and wax; to persons conversant in electricity, this hint is needless.

In the London Magazine, about ten years ago, is a plan of a machine for a perpetually electrified garden.

Since the thought occurred to me, I have not had an opportunity of trying the effects of electricity upon insects so sufficiently, as positively to ascertain it; but from the experiments I have

tryed, there seems a great probability of success ; if any gentleman, after making some experiments, would choose to communicate them to me, that they might be made public, I should think myself greatly obliged to him, and would insert them, on the first opportunity.

A newly-invented Fumigating Bellows to destroy insects.

The great injury, which plants receive from various insects, particularly in stoves, and the known efficacy of tobacco-smoak, in destroying almost all sorts of insects, induced Mr. Green, foreman to her majesty's flower-garden, at Kew, to try what effect tobacco-smoak would have, could he apply it immediately to those plants which were infected ; to try the experiment, he caused an additional pipe of iron, capable of containing about an ounce of tobacco, to be fixed to a common bellows ; the tobacco being lighted by a bit of tinder, the working of the bellows throws out a stream of smoak ; it must be first applied to those plants which are the most infected, and afterwards the greenhouse, or stove, must be filled entirely with smoak, by a hole made in the door to admit the pipe of the bellows, as you cannot long stay in the house, after you begin the operation.

Keep

Keep the stove, or greenhouse, shut as close as possible, to confine the smoak in it, as long as you can, which will be for several hours. This must be repeated two or three times, according to the condition the plants are in; but if it happens that only some few plants are infected, remove them out into a closet or small room, which will not cause so much tobacco to be used, and fumigate them there.

It is almost needless to observe, that it is utterly impossible for any insect to live in an atmosphere replete with such a poison as the smoak of tobacco, and that it must certainly kill all the insects that are in it at the time the operation is performed; as fresh ones breed and appear, it must be repeated; nor does the smoak, for so few hours as the plants remain in it, cause any injury to them.

Mr. Green, having himself experienced such great benefit, by keeping all his plants clear from insects, had the generosity to make this very useful discovery public: it was tried with equal success by many persons in the royal gardens, and by others in the neighbourhood, and was found to answer extremely well in forcing-frames for fruit-trees; likewise in hot-beds, and also on melon-plants, infected with red spiders; for which he received the premium of twenty pounds, offered by

by the society for the encouragement of arts, &c. for the best account of a method for *destroying the red spider*.

Seeing the great use of this invention, in its original state, I judged it might be considerably improved, especially in containing more tobacco; the person I applied to, also proposed a double bellows, to give a perpetual stream of smoak, and that the pipe should be made in cast brass, with an occasional pipe of tin, about three feet long, to reach tall plants in stoves, or fruit-trees against walls, or in forcing-frames: they may be now purchased of Mr. Green, the inventor, at Kew, or of Mr. Derby, the maker, in Union-court, Holborn, and at Islington, for twenty-seven shillings; or a larger sort, which holds more tobacco, at thirty shillings.

CATALOGUE

OF
ENGLISH AUTHORS,

CATALOGUE

OF

ENGLISH AUTHORS,

WHO HAVE WRITTEN ON

HUSBANDRY, GARDENING, BOTANY, NATURAL
HISTORY, and Subjects relative thereto.

ARRANGED IN THEIR CHRONOLOGICAL ORDER,

Whichever is at the service of circulating the works of the
English writers, will be surprised to find how much several of the
Whichever

THE HISTORY OF THE
ARTS AND MANUFACTURES
OF GREAT BRITAIN

IN FIVE VOLUMES
BY J. H. MILLAR
OF THE MIDDLE TEMPLE
ESQ. OF THE BAR
AT THE CLERK'S OFFICE
IN THE HIGH COURT OF CHANCERY
LONDON

CATALOGUE
OF
THE

ENGLISH AUTHORS
WHO HAVE WRITTEN ON

HUSBANDRY, GARDENING, BOTANY, NATURAL
HISTORY, AND SUBJECTS RELATIVE THEREON.

ARRANGED IN THEIR CHRONOLOGICAL ORDER.

A
C A T A L O G U E

O F
E N G L I S H A U T H O R S,

WHO HAVE WRITTEN ON

HUSBANDRY, GARDENING, BOTANY, NATURAL
HISTORY, and Subjects relative thereto.

ARRANGED IN THEIR CHRONOLOGICAL ORDER.

W I T H

REMARKS on some of the ANTIENT WRITERS.

AS the study and practice of Agriculture, Gardening and Botany is every day increasing, this country which is so justly celebrated for its knowledge and industry in the culture of land; an account of the different authors who have favoured the public with their observations, cannot but be acceptable to the curious in those studies, particularly as many gentlemen are now endeavouring to collect all the British authors on those subjects; I have been induced to publish this catalogue, in order to give them an opportunity of knowing most of their works, and to enable them to compleat their collection the more readily.

Whoever is at the trouble of examining the works of the first writers, will be surpris'd to find how much several of the

Whoever

modern compilers of many voluminous works on agriculture and gardening are indebted to them, but have not had the ingenuity to acknowledge from whom they borrowed.

Some books, which I have mentioned, may, perhaps, be thought foreign to the subjects; but as, on perusing the works, a part of them will be found relative thereto, I judged it better to insert them.

The disposing of this catalogue in chronological order, not only shews the time in which each author lived, but incites the reader to a reference to each particular work, if he should wish to be informed of the state of agriculture at that period, and the successive improvements which one writer has made upon another; in an attempt of this kind, it is not to be supposed, but that there are several errors, and perhaps, under a different title, the same work may have been inserted twice: I should therefore think myself much obliged to any person who will give me an account of such mistakes, that they may be corrected at a future opportunity. It is incumbent on me to declare, that this list is greatly indebted to a gentleman, who is now making a compleat collection of books upon these subjects. He favoured me with the titles of about one hundred volumes, which I had not, and these, luckily for me, were the scarcest, and by the most valuable amongst the antient writers.

I had intended to give the price of every book, but the attempt convinced me it could not be effected with sufficient exactness; I have, therefore, only marked those, which have been published since the year 1730; and which are supposed to be in common binding, except otherwise particularly expressed.

Though Fitz-Herbert, whose first work appeared in 1534, be generally stiled the father of English husbandry; yet there were some few books printed before his time, as appear by the following, but they are in general translations from the French.

1480. Bryce, (Hugh.)—The mirrour of the worlde.

This book, which is a translation from the French, was printed by Caxton, at the expence of Hugh Bryce, an alderman of London, to be presented to the Lord Chamberlain Hastings. It contains one hundred leaves, and amongst other subjects, enumerates the following.

“ It speketh of nature, how she werketh, and what she is: cap. 14. 1. partie of the rubrices.”

“ Of the regyons of Ynde, and of thinges founden there. cap. 4. 2 parte.”

“ Of the trees that ben in Ynde, and of theyr fruyt. cap. 10.”

“ Of the diverfitytes that ben in Europe and Affryce. cap. 14.”

1500. ———, ———.—Propertees, and Medcynes for a horfe. Wynken de Worde, 4to.

This book and the following were printed before the year 1500, though the exact year I have not been able to ascertain; at the end of it is written the following.

“ And here we shall leve to treate ferthermore in this fayde mater, whych is dylygently corrected, and made after a sufficyent copy directed unto me by a certen perfon whyche as hym thought rygt necessary to be knowen to gentlemen, and men of honour, as to servisable and rustyke people.

1500. Groshead, (Bishop.)—Treatise of husbandrie, Wynken de Worde, 4to. translated from the French.

1510. Vaughan, (R ——.)—Water-works, containing the manner of Winter and Summer drowning the meadow and pasture lands.

1516.

1516. ———, ———.—The Grete Herbal. Peter Treveris.

1521. Arnolde, ———.—The Customes of London, or Arnolde's Chronicle, fol.

In this booke is conteined the names of the baylyfs, custose mayers and sherefs of the cyte of London, from the tyme of Kynge Richard the fyrst, and also the artycles of the chartour and lybartyes of the same cyte; and of the chartour and lybartyes of England: with other dyvers maters, good and necessary for every cytezen to understand, and know, &c. fol.

This book is supposed to be printed in 1521, and is divided into chapters, amongst which are the following articles;

The act for trees above 20 yeres growing to pay no tyths.

The crafte of graffyng and plantyng and alteryng of frutys, as well in colours as in taste.

A treatyse of the four elementys and four seasons, &c. and of the canyculare dayes.

The fourme and mesur to mete lande by.

Percely to grow in an our space.

Copy of the chartour and forest of England.

To brewe beer.

1527. ———, ———.—The Grete Herbal, which gyveth parfyt knowlege and understandyng of the boke lately printed by me Peter Treveris.

Peter Treveris was the first printer in Southwark, the book to which he alludes was "the Grete Herbal, 1516," and the first or second production which issued from his press.

1527. Andrew, (Laurence.)—The vertuous booke of the distillation of all manners of waters, of the hearbes of this present volume expressed, with the figures of

stilla-

1527. stillatories to that noble worke belonging : made first in high Almayne by Jerom Brunswicke ; translated by Laurence Andrew, at the Golden Crosse, the 18th of April, 1527, fol.

'The first English author who expressly wrote on husbandry, is supposed to be Fitz-Herbert, born at Norbury, in Derbyshire, where, I believe, he is buried ; he was made judge of the common pleas in the 15th year of Henry the eighth ; his first work, which is in *Italics*, is intitled

1534. Fitz-Herbert.—The book of husbandry, imprinted at London, in Fleet-Street, in the house of Thomas Berthelet, near the conduit, at the sign of Lucrece, (cum privilegio.)

Of this treatise the author speaks as follows :

“ As touching the points of husbandry, I will not say it is the best way, and will serve best in all places, but I say it is the best way that ever I could prove by experience ; the which have been an housekeeper forty years and more ; and have essayed many diverse ways, and done my diligence to prove by experience which should be the best way.

———— Rhet'rick in me doth not abound,

Wherefore I have sown such seeds as I have found.”

At the end of it are these words :

“ Here endeth the right profitable book of husbandry, compiled some time by Master Fitz-Herbert, of charity and good zeal that he bare to the public weal of this most noble realm : which he did not in his youth, but after he had exercised husbandry, with great experience forty years.”

1538. Benffe, (Syr Rycharde.)—The Maner of Measuryng of all manner of Lande, as well woodlande, as of lande of the field, newly invented and compyled by Syr Rycharde Benffe, chanon of Marton Abbaye, besyde London. Printed in Southwarke, in Saynt Thomas Hospital, by me James Nicholson, with the preface of Thomas Paynell, Chanon of Marton, 4to.

1539. Fitz-Herbert.—His second work, in husbandry, is entitled Surveying; or, as he calls it in another place, the Book of Surveying and Improvements; it is a small octavo, containing 120 pages, imprinted for Berthelet, in a black letter.

This treatise consists of instructions to noblemen and gentlemen, who are the managers of their own estates, and to land-stewards, bailiffs, &c. who act under them. It sets forth, likewise, the nature of tenants tenures, and the laws of court-baron, court-hundred, chartuaries, &c. being a sort of commentary on an old statute, named, *Extenta Manerii*.

They who cannot procure these two books of Fitz-Herbert, (of which, probably, there are not twenty complete copies in the kingdom) may content themselves with S. B——'s Epitome of Husbandry, 12mo. 1669; as this author, without making the least acknowledgment, has transcribed from him 181 pages, almost verbatim, but they have since been reprinted in 1769.

Mr. Harte, from whom I have taken the above, and several other remarks of our ancient husbandry writers, says, one may pronounce justly, concerning each book of husbandry which Fitz-Herbert has given us, what a modern writer observes of Cre-

scenzio's

1539. scenzio's *Agricoltura*, which was published fifty-six years before: est libro stimatissimo et fa testo dell' Arte; in short, Fitz-Herbert, like Virgil, seems to have written entirely from his own experience.

The following passage, which is in one of Hugh Latimer's discourses, preached before Edward the 6th, as it relates to his personal history, and is also a just picture of the ancient yeomanry, will not be unacceptable to the reader, as it shews likewise the value of land at that period.

"My father was a yeoman, and had landes of his owne; onely he had a farme of three or four pound by yere at the uttermost; and hereupon he tilled so much as kepte halfe a dozen men. He had walke for a hundred sheps, and my mother mylked thirty kyne. He was able, and did find the king a harnesse, with hymselfe and hys horse, whyle he came to the place that he should receyve the kynges wages. I can remembre that I buckled hys harnes, when he went into Blackheath felde. He kepte me to schole, or elles I had not been able to have preached before the kynges majestie now.

He marryed my sisters with five pounce, or twenty nobles a pece; so that he broughte them up in godlines and fear of god. He kept hospitalitie for his pore neighbours, and sum almecs he gave to the poore, and all thys did he of the sayd farme."

King Edward the 6th began his reign in 1547, and died in 1553.

1539. ———, ———.—A Grete Herbal: a Table after the Latyn names of all hearbes: a table after the Englyshe names of all hearbes; the propertees and qualytees, &c. Londini in edibus, Thome Gibson.

A CATALOGUE OF ENGLISH AUTHORS.

1542. Macer's Herbal,—translated out of Latyne, imprynted by me Rycharde Wyer, at the synge of Saynt Johan evangelyste, in Saynt Martyns paryshe, in the Bishop of Norwytche rentes, besyde Charynge-crosse, 8vo.
1544. Turner, (Gulielmus.)—Anglus. *Historia de naturis Herbarum.* Coloniae, in 8vo.
1550. ———, ———.—The Boke of Haukyng, Huntynge, and Fyshyng, with all the propertees and medecynes that are necessary to be kepte, imprynted by William Powell, 4to.
1551. Turner, M. D. (William.)—A New Herbal, wherein are contained the names of herbes in Greeke, Latin, Englysh, Duch, Frenche, and in the Potecaries and Herbaries latin, with the properties, degrees, and natural places of the same gathered. London, by Steven Micrdman in fol. with cuts from Fuschius. The second part, with a booke of the natures of the bathes, London, Arnold Birchman, 1562. A third Edition in 1568, fol, black letter.
1559. Morwyn, (Peter.)—The Treasure of Euonymus, conteyninge the wonderful hid secretes of nature, 4to.
1559. ———, ———.—The Kalendar of the Sheparden, imprynted by William Powell, fol.
1561. Hollybush, (———.)—The most excellent Homish Apothecarie, translated by Hollybush, fol.
1562. Bulleyne, (———.)—Bulwarke of Defence against all sicknes, forenes and woundes that doe dailie assaulte mankinde, which bulwarke is kepte with Hillarius the gardyner, and health the physician: with his boke of symples. Imprinted by John Kyngstone, fol.
Bulleyne,

1562. Bulleyne, an ancestor of the late Doctor Stukely, flourished in the reigns of Edward the sixth, Mary and Elizabeth. His extensive knowledge of plants had been exceedingly improved by his travels through Germany and Scotland; and by a close perusal of the best Greek, Roman, and Arabian botanical writers.

The science of herbs is become considerably diffusive since the days of Bulleyne; yet its researches have been too frequently prevented from reaching greater purposes, because succeeding writers were more attentive to the names and classes, than the virtues of the plants.

1562. Tusser, ———.—Five hundred Points of Husbandry. black letter, 4to.

Tusser's book is written in quatrains, or stanzas, of four verses each, and is very obsolete; it contains more verses than Virgil's Georgics.

There are other editions of this in 1604, and 1672, in 8vo. also in 1710, and in 1743, with notes and observations.

The following work is sometimes joined with it.

1562. Whetston, ———.—Rocke of Regarde; containing the castle of delight, the garden of unthriftinesse—the arbour of virtue, and the orchard of repentance.

1565. Moore, (Philip.)—The Hope of Helthe, wherein is contayned a goodlie regimente of life, and the virtues of fondrie herbes, doen by Philip Moore, imprinted by John Kyngstone, 12mo.

1566. Blundeville, (Thomas.)—The fower chiefyst Offices belonging to Horseshanshippe; that is to say: the office of the breeder: of the rider: of the keeper:

1566. and of the ferrer; by Thomas Blundeville of Newton Flotman in Norfolk, imprynted by William Seres, 4to.
1571. Mountain, (Dydimus.)—The Gardener's Labyrinth, shewing the physical virtues of each herb, with cuts, printed by Bynneman, black letter, 4to.
Another edition in 4to. in 1608, and in fol. in 1652.
1572. Mascall, (Leonard.)—New Art of Planting and Grafting, 4to. and in 12mo.
1572. ———, ———.—Remedies for Diseases in Horses; approved and allowed by divers very learned Marchalles: with a cut of a horse, imprynted by Thomas Purfoot, contains twelve leaves in 4to.
1573. Moore, (Philip.)—A Prognostication for thirty-four years, verie profitable for all men, specially for husbandmen, &c. by Philip Moore, imprynted by William Williamfon, for Anthony Kitson, 12mo.
1574. Hyll, (Thomas.) Art of Gardening, black letter, in 4to.
1574. ———, ———.—The perfitte Ordering with the marvellous nature of Bees, black letter, in 4to.
1574. Scot, (Reynolde.)—Perfect Platform of a Hop-Garden, 4to. another edition in 1576.
Reynolde Scot, esq; (according to A. Wood) was the younger son of Sir John Scot, of Scot's-Hall, near Smeeth, in Kent. He was bred at Oxford, and “gave himself up solely to solid reading; to the perusal of obscure authors, that had been neglected by the generality of scholars; and at times of leisure to husbandry and gardening, as appears by his perfect platform of a hop-garden, which was the first treatise written upon that subject.”

1574. He also wrote a book entitled Scot's Discovery of Witchcraft, 401 pages in 4to. in 1561; the absurd and abominable pretences to which, he seems to have first detected publickly, at least, in our nation.

1575. Morwyng, (Peter.)—The Treasure of Euonymus, conteyninge the wonderful hid secretes of nature, translated with great diligence and laboure out of latyne, by Peter Morwyng, fellow of Magdaline Colledge in Oxford, with wooden cuts of herbs, imprynted by John Daie, dwelling over Aldersgate, beneath St. Martines, in 4to.

1577. Leigh, (———.)—Profitable and commendable Science of Surveying Lands, 8vo. and in 4to. in 1578.

1578. Lyte, (———.)—Niewe Herbal or History of Plantcs, their straunge figures, fashions, and shapes, imprynted by Gerarde Dewes, in fol.
Another edition of this is by Edward Griffin.

1578. Googe, (Barnaby.)—The whole Art of Husbandry, in four books, 4to. black letter, imprynted for John Wright.

This valuable writer translated the work here spoken of, from the latin of Conrad Heresbach, a German gentleman, who published it at Cologne, in 1573. He was of Albingham, or, Alvingham, in Lincolnshire, and grandfather to Barnaby Googe, esq; who lived there in 1634. The epistle to the book of husbandry is dated at Kingston, February 1, 1557. Gervase Markham reprinted this work in 1614, 4to. with insertions: intended chiefly to adapt German husbandry to the English climate. The following authors are also quoted by B. Googe, and some are

1578. said to have been contemporaries with Fitz-Herbert, but their writings are very scarce, if preserved at all.

Sir Thomas Malbee,	Captain Bingham,
John Somer, canon of Wind-	Thomas Wettenhall,
for,	Richard Deering,
Henry Brockhull,	Mr. Franklyn,
H. King, D. D.	Richard Andrews,
Henry Dennis,	William Pratt,
John Hatche,	Philip Partridge,
Nicholas Yeerfworth,	Henry Datforth.

1580. Frampton, (John.)—Joyful Newes out of the new-founde worlde; with the rare and singular vertues of hearbes, trees, plantes, &c. also the portratures of the sayde hearbes verie aptlie described; Englished from the Spanish of D. Monardus by John Frampton, merchant in London, imprynted by E. Allde, by the assygne of Bonham Norton, in small 4to. This is a translation from the book :

“ *De las Drogas de las Indias.*”

The two first parts of which were printed successively in 1569 and 1571 : and the third and last part in 1574. The compilers of the biographical dictionary mention an English translation ; and add that they could not recover the name of the person who undertook it.

1581. ———, ———.—The husbandlye Ordering and Government of Poultrie, 12mo.

1582. ———, ———.—Boke of the Propertie of Hearbes and Flowers, printed for Richard Kele,

1586. ———, ———.—The Profytable Arte of Gardeninge, now, the thirde time set forth, to which is added much necessarie matter, and a number of secretes, with the physique helps belonging to each hearbe, and that easylie prepared, prynted by Robert Waldegrave, in 4to.

Although the author's name be not mentioned, by the title it appears to be the third edition of Hyll's arte of gardening.

1586. Lupton, (Thomas.)—A Thousand Notable Thinges of fundrie sortes, whereof some are wonderfull, some straunge, some pleaufant, dyvers necessarie, a great sort profitable, and many very pretious: by Thomas Lupton at London, imprynted for Edward White, dwellinge at the little north door of Paules, at the fynge of the gunne, in 4to.

1586. Lyte, (———.)—New Herbal or Hystory of Plantess, Englyshed by Lyte from Dodoens, imprynted at London, by Ninian Newton, black letter.

1588. ———, ———.—Certain Causes gathered together, wherein is shewed the Decaye of England onlie' by the grete multitude of shepe, to the utter decaye of keepinge of the house, mayntenance of men, dearthe of corne, and other notable discommodities: dedy-cated to the kynge and parlyment, prynted by Hugh Singleton, dwellyng in Smythfield, in 12mo.

1588. ———, ———.—The good Huswife's Hande-mayde, prynted by Richard Jones, with Anthony Hyll, in 8vo.

1589. Hackluyt, (———.)—Voyages, Travels and Discoveries, black letter, in fol,

1591. B——, (I ——.)—The Book of Thrift, by I. B., in 12mo.

1591. Cockaine, Knight, (Sir Thomas.)—A short Treatyse of Huntynge, compyled for the delight of noblemen, prynted by Thomas Orvin, in 4to.

1593. Hyll, (Thomas.)—Profytable Art of Gardening, black letter, in 4to,

1593. Platt, (Sir Hugh.)—Dyvers Soyles for manuring pasture and arable land, in 4to.

Sir Hugh Platt was the most ingenious husbandman of the age he lived in: yet so great was his modesty, that all his works seem to be posthumous, except the *Paradise of Flora*, which appeared in the year 1600, when it is probable he was living. He spent part of his time at Copt-hall, in Essex, or at Bishop's-hall, in Middlesex, at each of which places he had a country seat, but his town residence was Lincoln's Inn.

Sir Hugh held a correspondence with all lovers of agriculture and gardening throughout England, and such was the justice and modesty of his temper, that he always named the author of every discovery communicated to him.

In a word, no man in any age ever discovered, or at least brought into use so many new sorts of manure; witness his account of the compost and covered dung-hill, and his observations on the fertilizing qualities lodged in salt, street-dirt and fullage of streets in great cities, clay, fullers-earth, moorish earth, dung-hills made in layers, fern, hair, calcination of all vegetables, malt-dust, willow-tree earth, soap-boilers ashes, broken pilchards and marle.

This

1594. Plattes, (Gabriel.)—Jewel-house of Art and Nature, 4to. Gabriel Platte's Arts Mistress, containing his own experiments for fifty years; but this was not published.

This author may be considered as an original genius in husbandry. He began his observations in the latter end of Queen Elizabeth's reign, and continued them through the reigns of James and Charles the first, and also during three or four years of the common-wealth.

This ingenious writer, whose labours were productive of plenty and riches to others, was so destitute of the common necessaries of life, as to perish with hunger and misery. He was found dead in the streets, without a shirt to cover him, to the eternal disgrace of the government he lived under. He bequeathed his papers to S. Hartlib, whom a contemporary author addresses in this manner: "none (but yourself who wants not an enlarged heart, but a fuller hand to supply the world's defect) being found, with some few others, to administer any relief to a man of so great merit." Letter to Hartlib from Flanders, 1650.

Another friend of Hartlib's, gives Plattes the following character: "certainly that man had as excellent a genius in agriculture, as any that ever lived in this nation before him, and was the most faithful seeker of his ungrateful country's good. I never think of the great judgment, pure zeal, and faithful intentions of that man, and withal of his strange sufferings and manner of death, but am struck with amazement, that such a man should be suffered to fall down dead in the streets for want of food, whose studies tended in no less than providing

1594. ——— ding and preserving food for whole nations, and that too as with much skill and industry, so without pride or arrogance towards God or man."

His other works may be seen in the order they were published, in 1644, 1653, and 1656.

1595. Ward, (William.)—Secretes of the reverend Maister Alexis of Piemont, translated out of Frenche into Englishe, by William Ward, imprynted at London, by Peter Short, for Thomas Wight, in 4to.

The original work is written in the Italian tongue; Wecher translated it into Latin, and it has been often rendered into French.

Alexis was master of most languages, an indefatigable enquirer after the secrets of nature; he passed sixty years in travels. He was so ridiculous as to pique himself on concealing his acquisitions from the knowledge of another, till he was witness to the fatality of a distemper, which he had imagined his prescriptions might have cured. He then became a penitent, an hermit, and an author. The solitude of private life was wisely dedicated to the publication of those works, which he had so foolishly denied the world, when he was living in the midst of it.

The greater part of his compositions is confined to physick; but the husbandman may find some useful hints in several pages of his writings.

1596. ———, ———.—Remedies against Famine, in 4to.

1596. Mascall, (Leonard.)—On Horses, the second book of his treatise on cattle, black letter, in 4to.

1597. ———, (——— .)—Howe to chuse, ride, traine, and diet both Hunting-Horses and Running Horses: with
al

1597. all the secretes thereunto belonging, discovered; an arte never heretofore written by any author, prynted by John Windet, in 4to.

1597. Gerrard, (John.)—Herbal, with cuts in fol. and in 1599, in fol. enlarged and amended by Thomas Johnson, 1633, and 1636.

1597. Lawfon, (William.)—A New Orchard and Garden, in 4to. Another edition in 1623.

1598. Langham, (——.)—Garden of Health, containing the rare hidden virtues of all kind of simples, black letter, in 4to.

1599. Hackluyt, (——.)—Voyages, Travels and Discoveries, black letter, 3 vol. folio.

1599. Churchy, (G ——.)—A new book of Good Husbandrie: Dubravius of fish and fish-ponds, by G. Churchy, of Lyon's-Inne, printed by William White.

The treatise on fish and fish-ponds is translated from the Latin of Dubravius: de piscinis et piscium naturis.

1599. M——, (T — .)—The Silke-wormes and their Flies, lively described in verse by T. M. a countrie farmer, and apprentice in physick, printed by Vallen-tyne Simmes, in 4to.

1600. Platt, (Sir Hugh.)—Paradise of Flora.

1600. ———. ———.—The true and admirable Art of Setting Corn, 4to.

1600. ———, ———.—Certain experiments of Fish and Fruit, 4to.

1600. Surfleet, (———.)—The countrie farme, also a collection of hunting the hart, boare, hare, fox, grey coney,

1600. coney, of birds and faulconrie, with cuts, printed by Bollifant, translated from the French *Maison Rustique* of Charles Stephens.

1601. Holland, M. D: (———.)—Pliny's Natural History, in fol. translated into English, and written with only one pen.

This man, bred at Cambridge, has been stiled the "translator general of his age:" like Sir Richard Blackmore, he was both schoolmaster and physician; and surely, the number of his scholars, and of his patients could not have been considerable, if one may form a judgment from that multitude of translations in which he was engaged, till he had reached his eightieth year. He rendered Livy and Pliny on natural history, Plutarch on morals, Suetonius, Ammianus Marcellinus, Xenophon's *Cyropædia*, and Camden's *Britannia* into English; the geographical part of Speed's theatre of Great Britain, he translated into Latin. The following lines are, at once, proofs of the excellence of his pens, and the badness of his poetry.

With one sole pen I writ this book,
Made of a grey-goose quill,
A pen it was when it I took,
And a pen I leave it still.

1606. Ram, (———.)—Little Dodeon, or History of Plants, black letter.

1606. Massie, or Maxie. (———.)—A Treatise on Drilling Corn, in 4to.

1606. Surfleet, (———.)—The Countrie Farme, in 4to, another edition since 1600.

1607. Geffe, (Nicholas.)—The perfect Use of Silk-worms, Englished by Nicholas Geffe, in 4to.
1607. Norden, (Sir John.)—The Surveyor's Dialogue, by that eminent antiquarian Sir John Norden, black letter, in 4to. another edition in 1618, and in 1738. Some extracts out of this book may be seen in the *Museum Rusticum*.
1608. Mountain, (Didymus.)—The Gardener's Labyrinth, in two parts. in 4to.
1609. Butler, (——— .)—Feminine Monarchie, or Treatise on Bees, in 4to. another edition in 1637.
1610. Falkingham, (——— .)—Survey, in 4to.
1611. ———, ———.—The Common's Complaints upon the general destruction and waste of woods, and the dearth of victuals, with remedies, in 4to.
1612. C ———, (R ——— .)—An Old Thrift newly revived, by R. C. of planting and preserving of timber and fewel, in four parts in 4to.
1613. Standish, (Arthur.)—Directions for the Planting of Timber and Fire-wood.
1614. Googe, (Barnaby.)—Whole Art of Husbandry, in 4to. reprinted by G. Markham, with additions.
1615. Manwood, (——— .)—A Treatise of the Laws of the Forests, wherein is declared not only those laws, as they are now in force, but also the original and beginning of Forests, black letter, in 4to.
1616. Rathbone, (Aaron.)—The Surveyor, in four books, in fol.

1616. Surfleet and Markham.—The Countrie Farme, the 3d. edition in fol.
1618. Seldon, (———.)—History of Tythes, in 4to.
1623. Lawfon, (William.)—A new Orchard and Garden, 4to.
1623. Markham, (Gervase.)—The country Houſewifes Garden, in 4to.
1624. Simſon, (Archibald.)—Hieroglyphica inſectorum vegetativorum, &c. quæ in ſacris inveniuntur ſcripturis. Edingburg.
1627. Maſcall, (———.)—Government of Cattle, in three parts, black letter, in 4to.
1629. Parkinſon, (John.)—Paradiſi in Sole: Paradifus Terreſtris, or a Garden of pleaſant Flowers, in fol. an edition in 1656.
1630. Plattes. (Gabriel.)—New cheap and delicate Fire of Cole-balles, in 4to.
1631. Digges, (Leonard.)—Tectonicon, or a Treatiſe of Surveying, with cuts, in 4to, black letter.
1631. ———, ———.—The Shepherds Calendar, wooden cuts, black letter, in fol.
1631. Auſten, (Francis.)—Obſervations on Sir Francis Bacon's Natural Hiſtory, ſo far as it concerns Fruit-trees, 4to.
1631. Markham, (Gervase.)—Farewell to Huſbandry, in 4to.
———, ———.—Whole Art of Huſbandry, with cuts, black letter, in 4to. another edition of B. Googe, reprinted by Markham.
1633. Johnſon, (Thomas)—Gerrard's Herbal, greatly enlarged and improved, in fol. with wooden cuts.

1634. Johnson, Thomas.—*Mercurius Botanicus*, five Plantarum gratiâ suscepti Itineris anno, 1734, descriptio, cum earum nominibus latinis et anglicis. Huic accessit de Thermis Bathonicis Tractatus. Londini excudebat, Thom. Cotes, in 12mo. p. 78. tit. &c. p. 6.

———, ———.—*Mercurii Botanici pars altera*, five Plantarum gratiâ suscepti itineris in Cambriam, five Walliam Descriptio, exhibens reliquarum Stirpium nostratium (quæ in priore parte non enumerabantur) Catalogum. Londini Excudebat T. et R. Cotes 1641. p. 37. t. &c. p. 8.

Mr. Johnson was an Apothecary in London, and an eminent Botanist for the age in which he lived, which appears by the great improvement he made to Gerard's Herbal. After having published that work in 1633, the great love he had for the science, induced him to think of visiting various parts of the kingdom, to examine the native botanical beauties of his own country: in July 1634, he and several of his friends set out from London, on their first botanical expedition, towards Bath: in the preface he gives the following account of his companions.

“Sed hoc anno (1634) crescente in dies noscendi cupiditate, majora suscipere non dubitavimus, itaque (præter solitum sumptis in subsidium equis) ad hoc negotium paratos, 14 Julii, se præbent *Richardus Edwards* Societatis Pharmaceutices Lond. eo temporis Magister, *Edwardus Cooke* Guardianus superior, *Tho. Hickes* Magister nuper electus, *Rogerus Henricus Yonge*, *Gulielmus Broad*, *Robertus Lorkin*, *Jacobus Clarke*, cum tribus aliis iis famulantibus. Hi consensu equis, et vulgatâ viâ triginta nostratium miliarium, spatium emensi Reading satis amplum et notum oppidum perveniunt; ibique pernoctantes

1634. fruebantur societate viri doctissimi *Jobannis Bird* Medici, ut etiam *Jobannis Watlington* Pharmacopæi, qui eos comitatus est usque ad Marleborough, ubi sequente nocte hospitio excipiuntur: et egomet Bathoniâ iis huc usque obviam processi."

In this journey they passed through Reading, Marlborough, Bath, Bristol, Gloucester, Salisbury, the Isle of Wight, Southampton, Chichester, Petworth, Guilford, and arrived in London the 26th of the same month: the same year he favoured the public with a catalogue of the plants which they discovered, amounting to above seven hundred.

In 1639 Mr. Johnson, in company with Mr. Paul Sone, and Mr. Edward Morgan, set out from London the 23d of July, on a botanical excursion into Wales; in this rout they visited Stratford upon Avon, Wolverhampton, Newport, and Stockport, where they wrote the following lines on the wall, on account of the bad reception they found there.

Si mores cupias venustiores,
Si lectum placidum, dapes salubres,
Si sumptum modicum, hospitem facetum,
Ancillam nitidam, impigrum ministrum,
Huc diverte, Viator dolebis.
O Domina dignas, formæ et fæctore ministras!
Stockportæ, si cui fordida grata, cubet.

From Chester they passed through Flintshire, over the Promontory of Pen-maen-mawre (the passage of which has lately been so much improved, and worthy the attention of every Naturalist) and on the 3d of August ascended the highest of our British Alps, Snowdon, called by the antient Britons Widhfa.

1634. Hic montes alios inter caput extulit altos
 Quantum lenta solent inter Viburna Cupressi.
 On the top of this mountain, to their great surprize,
 they found the following marine plants.

Gramen junceum marinum.

Caryophyllum marinum.

Lychnidem marinam Anglicam.

After having viewed this great natural curiosity, they visited the Isle of Anglesea, and continued their rout through Bangor, Ludlow, Hereford, Gloucester, Oxford, before they returned to London: in 1641 Mr. Johnson obliged the public with an account of their journey describing about two hundred plants more than were mentioned in his first journey. Some time after he made another botanical excursion through the county of Kent, and also in Hampstead wood, but these curious tracts being much scarcer than the two first, I have not yet had an opportunity of seeing them.

1634. Levet, (I ———.)—The Ordering of Bees, in 4to.
 1635. Bate, (I ———.)—The Mysteries of Nature and Art, in 4to. 2d. edition.
 1635. Markham, (Gervase.)—The English Husbandman enlarged.
 1637. Butler, (———.)—Feminine Monarchie, or Treatise on Bees, in 4to.
 1637. Remnant, (———.)—A Treatise on Bees, in 4to.
 1637. Plattes, (Gabriel.)—Discovery of Subterranean Treasure: viz. of all Manner of Mines and Minerals from the Gold to the Coal, with plain directions for finding them, also the Art of melting, refining and assaying them, &c. in 4to.

1639, De Gray, (— — —.)—Compleat Horseman and Farrier.

1640. Parkinson, (John.)—Theatrum Botanicum, or Theatre of Plants, in fol.

1644. Markham, (Gervase.)—Masterpiece, in 4to.

1644. Plattes, (Gabriel.)—Mercurius Lætificans, 12 pages, in 4to.

1645. Hall, (Joseph.)—Essay on Timber-trees.

Mr. Hall lived at Shidley in Yorkshire; an extract from this work may be seen in the *Museum Rusticum*.

1645. Weston, (Sir Richard.)—Discourse on the Husbandry of Brabant and Flanders, 24 pages in 4to. the Epistle dedicatory by Samuel Hartlib.

The author of this work, Sir Richard Weston, was ambassador from England to Frederic the fifth, Elector Palatine, and King of Bohemia, in 1619. He was present at the famous battle of Prague; and his curious relation of it in a letter, is still preserved in M. S.

His discourse on the Flanders Husbandry, which was published in 1645 by Hartlib, (who then knew not the author) has always been looked upon as a capital performance.

It is remarked in the Philosophical Transactions, that England has profited in agriculture, to the amount of many millions, by following the directions laid down in this little treatise.

In another edition (I believe 1655) Hartlib, in order to enlarge, and better explain it, annexed Dr. Beati's annotations to it.

1646. — — —, — — —.—Brief Discoveries of Ways and Means for Manuring and Improving Land.

1648 Markham, (Gervase)—Way to get Wealth, in six parts.
1. Cattle and Fowl. 2. Recreations for a Gentleman. 3. Cookery. 4. Enrichment of the Weald of Kent. 5. Enriching of Barren Ground. 6. Making of Orchards and Husbandry of Bees.

1649. Parkinson, (John.)—Theatrum Botanicum, or Theatre of Plants, in fol.

1649. Blythe, (— — .)—English Improver Improved, 4to.

1649. Blythe, (— — .)—Survey of Husbandry, discovering the best methods of improving all sorts of Land, fol.

1650. Howe, M.D.(William)—Phytologia Botanica, in 12mo.
Dr. Howe also published the *Stirpium Illustrationes* of Matthias Lobel, under his inspection, in 1665, in 4to.

1650. Hartlib, (Samuel.)—His Legacy.

A second edition was published in 1651, and a third in 1655.

1651. Hartlib, (Samuel)—Concerning the Defects and Remedies of English Husbandry, in a letter to Dr. Beati, in 4to.

Samuel Hartlib was a German gentleman by birth, a great promoter of husbandry, during the times of the commonwealth, and much esteemed by all ingenious men in those days, particularly by Milton, who addressed to him his treatise on education; Sir William Petty also inscribed two letters to him on the same subject, London, 4to. 1647, and 1648.

In his preface to this work, he laments greatly that no public director of husbandry was established in England by authority; and that we had not adopted the Flemish custom of letting farms on improvement.

“ If it pleases God (says he) to bless these motions,

1651. and that accordingly, the national husbandry of this common-wealth be improved, we may hope, through God's blessing, to see better days, and be able to bear necessary and public burdens, with more ease to ourselves, and benefit to human society, than hitherto we could attain to."

Preface, p. 2, 4to, 1651.

Cromwell, who was a great favourer of agriculture, in consequence of this admirable performance, allowed Hartlib a pension of 100*l.* a year; and Hartlib afterwards, the better to fulfil the intentions of his benefactor, procured Dr. Beati's excellent annotations on the Legacy, with other valuable pieces from his numerous correspondents.

The time when this author flourished, seems to have been an æra, when English Husbandry rose to high perfection; for the preceding wars had made the country gentry poor, and in consequence thereof, industrious; though sometimes the reverse of this happens in many kingdoms. But these wise men found the cultivation of their own lands to be the very best post they could be fixed in. Yet in a few years, when the restoration took place, all this industry and knowledge was turned into dissipation and heedlessness; and then husbandry passed almost entirely into the hands of farmers.

This famous work attributed to Hartlib, and called the Legacy, was only drawn up at his request, and passing through his correction and revision, was published by him; it consists of one general answer to the following query, namely; *What are the actual defects and omissions, as also the possible improvements in English Husbandry?*

1651. The real author of this work was R. Child: to it are annexed various correspondences from persons eminent for skill in agriculture, at that time, as C. D. B. W. R. H. T. Underhill, Henry Cruttenden, W. Potter, &c. as also the Mercurius Lætificans, and twenty large experiments by G. Platte; together with annotations on the Legacy by Dr. Arnold Beati, and replies to the animadversions, by the author of the Legacy.
1651. Speed, (Adam.)—The Reformed Husbandman, imparted to Hartlib, by Speed, in 4to.
1652. Grew, (Nehemiah.)—The Anatomy of Plants, in fol. another Edition in 1682, in fol.
1652. Mountain, (Didymus.)—The Gardener's Labyrinth, containing new and rare inventions, with cuts, in fol.
1652. Mascall, (Leonard.)—Art of Planting and Grafting.
1653. Blythe, (———.)—English Improver Improved, the third Edition, in 4to.
1653. Mascall, (Leonard.)—On Cattle, Black Letter, in 4to.
1653. Plattes, (Gabriel.)—Jewel-house of Art and Nature, in 4to. published by Dr. Beati. commonly called in England Dr. Boat.
1653. ———.—Observations and Improvements in Husbandry, accompanied with twenty experiments, imparted to Samuel Hartlib, 32 pages in 4to.
In a letter to Hartlib, May the 14th, 1664, he mentions a work of his called the Treasure-house of Nature unlocked, and set wide open to the world, &c. It is not known whether this performance was ever printed, or whether it is not the first treatise in 1637.
1654. ———.—The Countryman's Recreation, or three books of Planting, Graffing and Gardening, in 4to.

1654. ———, ———.—The Expert Gardener, with cuts.

1654. Whitaker, (———.)—The Blood of the Grapes, in 8vo.

1654. Cole, (William.)—Introduction to the Knowledge of Plants, in 12mo.

1654. ———.—The Art of Simpling, in 12mo.

1656. Markham, (Gervase.)—English Housewife.

1656. Plattes, (Gabriel.)—Practical Husbandry improved, or a Discovery of infinite Treasure, in 4to.

1656. Parkinson, (John.)—Garden of pleasant Flowers, in fol. with cuts, second Edition.

1656. Tradescant, (John.)—Museum Tradescantianum: or a Collection of Rarities preserved at South-Lambeth, near London, by John Tradescant, printed by John Grismond, in small 12mo.

This small book which contains only 202 pages, including 18 of the preface, on account of the two engraved heads to it of Mr. Tradescant, and his father, by Hollar, has been sold sometimes for four or five guineas.

In his preface he gives the following account of his collection. “About three yeares agoe, (by the perswasion of some friends) I was resolved to take a Catalogue of those Rarities and Curiosities which my Father had scedulously collected, and my selfe with continued diligence have augmented, and hitherto preserved together: They then pressed me with that Argument, that the enumeration of those Rarities, (being more for variety than any one place known in Europe could afford) would be an honour to our Nation, and a benefit to such ingenious per-

1656. fons as would become further enquirers into the various modes of natures admirable works, and the curious imitators thereof."

The Collection consists of

1. Birds with their eggs, beaks, feathers, clawes and spurres.
2. Four-footed beasts with some of their hides, hornes and hoofs.
3. Divers sorts of strange Fishes.
4. Shell-creatures, whereof some are called *Mollia*, some *Crustacea*, others *Testacea*, of these, are both *univalvia*, and *bivalvia*.
5. Several Sorts of Insects, } anelytra—coleoptera.
terrestriall. } aptera—apoda.
6. Minerals, and those of neare nature with them, as Earths, Coralls, Salts, Bitumens, Petrified things, choicer Stones, Gemmes.
7. Outlandish Fruits from both the Indies, with Seeds, Gummes, Roots, Woods, and divers Ingredients Medicinall, and for the Art of Dying.
8. Mechanicks, choice pieces in Carvings, Turnings and Paintings.
9. Other Variety of Rarities.
10. Warlike Instruments, European, Indian, &c.
11. Garments, Habits, Vests and Ornaments.
12. Utenfils and Householdstufte.
13. Numismata, Coynes antient and modern, both gold, silver and copper, Hebrew, Greeke, Roman, both Imperial and Consular.
14. Medals, gold, silver, copper and lead.

HORTUS TRADESCANTIANUS.

15. An Enumeration of his Plants, Shrubs and Trees both in English and Latine.
16. A Catalogue of his Benefactors.

1656. The Collection of the curiosities after their deaths was left to Elias Ashmole, esq; and is still preserved in the Ashmolean Museum at Oxford.

Mrs. Tradescant contested the will, and upon losing her cause, it is said she drowned herself.

His Garden did not meet with such a happy fate, for on the first leaf of the book, from which I have taken this account, is written the following. “Mr. Tradescant’s garden having for some years laid waste, on the first of May, 1749, Mr. Watson, F. R. S. being on that spot, found many of the Exotics remaining, having endured two great frosts in 1729 and 1740.

This last April I went to view their Monument, which is placed in Lambeth Church-yard, opposite to the East window of the vestry, but is now very much defaced: a drawing of it when in perfection is preserved at Oxford.

The Curate of the parish informed me that no account could be given of their family, except that he was a merchant, nor amongst the benefactors to the church is their name mentioned, except a Mrs. Esther Tradescant, who gave fifty pounds to the poor, supposed to be the widow of one of them.

1657. Hartlib, (Samuel).—Commonwealth of Bees.

1657. Austen, (Francis).—On Fruit-trees, in 4to. vide 1631.

1657. Ligon, (Richard).—A true and exact History of the Island of Barbadoes, also of the principal trees and plants there, with cuts, in fol.

1657. Purchas, (———).—Theatre of Political Insects, with the Manner of Ordering the Bees, in 4to.

1658. Stephens and Brown.—Catalogus Horti Botanici Oxoniensis. Oxoniæ, in 8vo. Editio. 2da.

1658. Platt, (Sir Hugh.)—Garden of Eden, in two parts in 8vo.

This is his Flora's Paradise (with a second original part) which one Bellingham, a kinsman of the author, published, and changed the title to the Garden of Eden.

1658. Evelyn, (John) —The French Gardener; instructing how to cultivate all sorts of fruit-trees and herbs for the garden, fol.

This great natural philosopher, who may justly be stiled one of the most eminent that England has produced, was born at Wotton, in Surry, the seat of his father, Richard Evelyn, esq; the 31st. of October, 1620: after he had finished his education at Oxford, his philosophic turn of mind induced him to quit his native country, rather than engage in the civil war then breaking out, and in 1644, he set out to make the tour of Europe.

His first work in gardening was the *French Gardener*, in 1658, about seven years after his return to England. In most of the editions of this work, of which there were several, is added the *English Gardener* vindicated by John Rose, gardener to King Charles the II^d. with a tract of the making and ordering of wines in France. The third edition in 1679, was illustrated with sculptures.

On the establishing the Royal Society, in 1662, he was appointed one of the first fellows and council, and at the request of the society, in 1664, published his *Sylva* and *Pomona*; a second edition appeared in 1669, and a third in 1679, with great additions and improvements. He also published in 1664 his

1658.

1658. *Kalendarium Hortense*, or the *Gardeners' Almanac*; the second edition of this work was dedicated to Mr. Cowley, with whom our author maintained a long and inviolable friendship; and it occasioned Mr. Cowley to address to him his mixt essay in prose and verse, the *Garden*: It went through many editions; and as our author made additions to it as long as he lived, that without doubt, is the best, which was printed by way of appendix, to the fourth and last edition of his *Sylva* in his life time.

The Royal Society having ordered, that every member of the council should, in his turn, pronounce at their several meetings, a discourse on some subject of experimental philosophy; Mr. Evelyn presented them his treatise, entitled *Terra*, which was printed in 1675, in fol. and 8vo. and since in 12mo.

The winter of 1683, being memorably severe, the fine plantations of our author at Sayes-court, suffered irreparable damage, of which he gave a philosophical and pathetic account to the Royal Society, the succeeding spring.

In 1693, came out his *Treatise of Orange-trees*, translated from the French of La Quintinie, and his last work was his *Acetaria*, in 1699, in 12mo. He also contributed largely to Mr. Houghton's *Husbandry and Trade improved*, and wrote the plan of a royal garden, describing and shewing the amplitude of that part of the *Georgics*, which belongs to Horticulture, but it was not published.

In 1705 was published the fourth edition of his *Sylva*, still considerably augmented, and all the lesser pieces relating to agriculture and gardening are annexed to it; another edition has been since printed in 1729, which is the fifth and last.

1658. Full of age and honours, this amiable author died, on the 27th of February, 1705-6, in the 86th year of his age, and was interred at Wotton.

Amongst all the English authors, there is no one to whom the art of gardening and agriculture is more indebted; the learned Mr. Wotton, in his reflections on ancient and modern learning, speaking of Mr. Evelyn says, that "it may be esteemed a small character of his *Sylva*, to say, that it out-does all that Theophrastus and Pliny have left us on that subject; for it not only does that, and a great deal more, but contains more useful precepts, hints and discoveries, upon that, now so necessary a part of our *Res Rustica*, than all the world had, till then, known from all the observations of former ages*."

The only son, whom he left behind him, (the grandfather of the present Sir Frederick Evelyn) translated the four books of gardens from the Latin verse of Renatus Rapinus, in 1673, 8vo. his father annexed the second book of it to his *Sylva*; and also that elegant Greek poem was written by him, which is prefixed to the second edition of his *Sylva*.

1659. Duckett, (Thomas.)---Proceedings concerning the Improvement of all Manner of Land, &c.

1659. Philpot, (———.)---Survey of Kent, in fol.

1659. Speed, (Adam.)---Adam out of Eden, by Adam Speed, gentleman, in 12mo.

1659. Lovel, (———.)---Complete Herbal, Oxford in 12mo. second edition, in 1665, at Oxford, in 12mo.

1660.

* Plus ultra: or, the Advancement of Knowledge since Aristotle, p, 74.

1660. Gendre, (—)---Right Manner of Ordering Fruit-trees, in 8vo.

1660. Raius, (Joannes.)---Catalogus Plantarum in aureâ Cantabrigiæ.

1660. —, —---Catalogus Plantarum circa Cantabrigiam, nascentium, Cantabrigiæ, in 8vo. Appendix in 1663, and 1685, in 8vo.

This eminent Botanist and Natural Philosopher, John Ray, was the son of a blacksmith, at Black-Notley, near Braintree in Essex, and was born there the 29th of November 1628: in 1644 he went to Catherine Hall, Cambridge, and in less than two years was removed to Trinity College, where he took the degrees in arts, and was chosen a Fellow. In 1651 he was appointed the Greek Lecturer; in 1653 the Mathematical Lecturer; and in 1655, Humanity Reader.

He published in 1660, a *Catalogue of the Cambridge Plants*, in order to promote the study of botany, which was then much neglected; and the good reception this work met with, encouraged him to proceed further in these studies and observations.

He no longer contented himself with what he met with about Cambridge, but extended his pursuits throughout the greatest part of England and Wales, and part of Scotland. In these journies of simpling, although he sometimes went alone, yet he had commonly the company of several curious gentlemen, particularly Mr. Willoughby, his pupil, and afterwards Sir Philip Skippon, and Mr. Peter Courthope.

At the restoration of the king, Mr. Ray resolved upon entering into holy orders, and was ordained

1660.

1660. by Sanderfon, bishop of Lincoln, in 1660. He continued fellow of Trinity College till the beginning of the Bartholomew Act, which requiring a subscription against the solemn league and covenant, occasioned Mr. Ray to resign his fellowship, he refusing to sign that declaration.

Having now left his fellowship, and visited most parts of his own country, he determined to see what foreign parts afforded; and accordingly in April 1663, Mr. Willoughby, Mr. Skippon, and Mr. Nathaniel Bacon with him, went over from Dover to Calais, and from thence through divers parts of Europe, and returned to England in March 1665-6: he pursued his philosophical studies with his usual attention, and became so distinguished, that he was importuned to come into the Royal Society, and was admitted fellow thereof in November 1667.

In the spring of 1669, Mr. Ray and Mr. Willoughby entered upon experiments about the tapping of trees, and the ascent and descent of their sap; which are published in the Philosophical Transactions.

In 1670 he published his *Catalogue of English Plants*; and in 1672, his *Collection of English Proverbs*. His humble thoughts of these two books, for his nature was modest and amiable in the highest degree, may be seen in a Latin letter of his to Dr. Lister, the 22d of August, 1670.

From that year he omitted the W in his name, for till then he had written it *Wray*; but this being, he says, contrary to the way of his forefathers, he therefore re-assumed the name of Ray.

1660. Mr. Ray having, by death, lost several of his best and most intimate friends; and as it is natural for the mind, when it is hurt in one part to seek relief from another, conceived thoughts of marriage; and accordingly, in June 1673. married the daughter of Mr. Oakely, of Launton in Oxfordshire, who was about twenty years of age. At the end of this year came forth his *Observations, Topographical, Moral, &c.* made in foreign countries: to which was added his *Catalogus Stirpium in exteris regionibus observatarum*. As it was the custom at that time, among the leading members of the Royal Society, to entertain the society with a philosophical discourse at their meetings, Mr. Ray complied, and sent a *Discourse concerning Seeds, and the specific Differences of Plants*; which was so well received by the president and fellows, that they returned him their thanks, and desired him to let them have more of the like favours from him: this was in 1674.

He had for some years the tutition of his friend Mr. Willoughby's two sons; but at the death of old lady Willoughby, he left Middleton-hall, and removed to Sutton-Cofield. Some time after he went into Essex, to Falborne-hall, where he continued till June 1697, and then removed to Black-Notley, his native place. Being settled here, and now free from interruptions, he began to resume his wonted labours, particularly in Botany: and one of the first things he finished, was his *Methodus Plantarum Nova*, which was published in 1682. This was preparatory to his *Historia Plantarum Generalis*, the first volume of which came out in 1686, the second in 1687, and the third some years after. To the compiling this history many learned and ingenious men gave

1660.

their helping hands, particularly Sir Hans Sloane and Dr. Tancred Robinson. In 1688 he published his *Fasciculus Stirpium Britannicarum*, and in 1690, *Synopsis Methodica Stirpium Britannicarum*, which was re-published, with great amendments and additions, in 1696, but the last edition is that of 1724. In 1691, in 8vo. came out his *Wisdom of God manifested in the Works of the Creation*, which has been often re-printed with large additions. He made a *Catalogue of Grecian, Syrian, Egyptian, and Cretan Plants*, which are printed with Rawvolf's Travels in 1673: and in 1694 he published his *Sylloge Stirpium Europearum extra Britanniam*.

He had afterwards some little contests with Rivinus and Tournefort, concerning the method of plants, which occasioned him to review and amend his own method, and to draw it up in a completer form than he had used in his *Methodus Plantarum* in 1682, or in his *Historia Plantarum*.

Mr. Ray and Mr. Willoughby, finding the history of nature very imperfect, agreed before they travelled, to reduce the several tribes of things to a method; Mr. Ray undertaking the vegetables, the other took the birds, beasts, fishes and insects. After Mr. Willoughby's death he reduced the materials into order, for the press, and published his observations upon birds in 1678, and in 1685 his history of fishes. In 1693 he published his *Methodica Animalium Quadrupedum*, and then set about his *Synopsis of Birds and Fishes*; but this getting into the book-sellers hands, lay suppressed many years, and was not published till after Mr. Ray's death, by Dr. Denham, in 1713.

1660 Towards 1698, he fell into a very ill state of health; however, he lived under several infirmities of body some years, and did not die till the seventeenth of January, 1704-5, at Black Notley.

He wrote several works on divinity, was a man of great parts, and had a singular vivacity in his stile, whether he wrote in Latin or English, which were equally easy to him.*

1660. Sharrock, (———.)—On the Propagation of Vegetables, by the concurrence of Art and Nature.

1661. Digby, (———.)—On Vegetation, in 12mo.

1661. Grew, (Nehemiah.)—On the Vegetation of Plants, in 8vo.

1662. Atwell, (George.)—The Faithful Surveyor, in 4to. Cambr.

1662. Dugdale, (———.)—The History of Imbanking, and Draining of divers Fens and Marches, both in foreign parts and in this kingdom, and of the improvements thereby extracted from Records, Manuscripts, and other authentic testimonies.

This Performance, written to oblige Lord Gorges, Sir John Marsham, and the other Adventurers is Dugdale's masterpiece. It was exceedingly scarce, and sold at a very high price, but was reprinted in 1772.

1664. Blake, (———.)—Gardener's Practice, in 4to.

1664. Evelyn, Esq. F. R. S. (John.)—Sylva; or a Discourse of Forest-trees, and the Propagation of Timber in his Majesty's Dominions; to which is added Pomona: or an Appendix concerning Fruit-trees, in relation to Cyder, the making and several ways of ordering

1664.

1664. it, &c. in fol. the second Edition in 1669, the third in 1679, with his treatise de Terrâ, the fourth in 1705, and the fifth and last in 1729, in fol.

1664. ———, —Kalendarium Hortense, or Gardener's Almanack, directing what he is to do monthly throughout the year, and what fruits and flowers are in prime, in 8vo.

This work was at that time so much esteemed, that by the year 1706, there were ten editions of it.

1664. ———, ———.—England's Happiness increased, or a Remedy against all succeeding dear years, by a plantation of Potatoes, in 4to.

Who the author of this small valuable treatise is, I have not at present discovered, but the public is much obliged to him, from the great benefit the poor of this nation has received from the cultivation of this valuable root: particularly from the scarcity and dearness of corn within these last few years.

Potatoes were introduced into England by Sir Walter Raleigh; he brought them from the continent of South America.

1665. Rea, (John.)—Flora or complete System of Gardening, with cuts, in fol.

1666. Blagrove, (Joseph.)—Supplement to Culpepper's English Physician, in 8vo. second edition in 1674.

1666. Merret, (Christopherus.)—Pinax Rerum Naturalium Britannicarum, continens Vegetabilia, Animalia et Fossilia, in 8vo.

1668. Chamberlayne, M, D. (———.)—England's Wants; humbly offered to the consideration of all good Patriots in both Houses of Parliament, in 4to.

1668. Lawson, (William.)---Husbandry of Bees, in 4to.

1668. Worlidge, (———.)---System of Agriculture, in fol.
second edition in 1675.

1669. ———, ———.—Observations and Advice œconomical, in 12mo.

1669. Blagrave, (Samuel.)—The Epitome of Husbandry, in 12mo. by S. B.

This transcript was compiled by Sam. Blagrave, or as some others say, Billingsly: he has copied, verbatim, 181 pages from Fitz-Herbert, without making any apology for this freedom; and the remaining chapters are taken, with the same liberty from Mascall, Blythe, and an Italian author, who wrote a treatise, called by the translator, the Heroic Excellence of Horsemanship.

1669. Ray, F. R. S. (John.) — On the Tapping of Trees, and Ascent and Descent of the Sap. Philos. Trans.

1669. Morison, (Robertus.)—Hortus Regius Blesensis, auctus, seu Preludia Botanica, in 8vo.

Another Edition at Paris in 1655, in fol.

1669. Newcastle, (Duke of.)—New Method and extraordinary Invention to dress Horses, in fol.

1670. Raius, (Joannes.)—Catalogus Plantarum Angliæ, in 8vo. Ed. 2da. in 1677, in 8vo. cum Fasciculo in 1688, in 8vo.

1670. Iliffe, (———.)—Compleat Vineyard, in 12mo.

1670. Smith, (———) — England's Improvement revived, in 4to.

1670. Bacon, (Lord.)—Sylva Sylvarum, or a thousand curious observations in Natural History.

1670. Pettus, (———.)—History, Laws and Places of the chief Mines and Mineral Works in England, Wales, &c. in fol.

1671. ———, ———.—Saint Foine, improved, in 4to. and in 1674.

1672. Drope, (———.)—Sure Guide of Raising and Ordering Fruit-trees, in 8vo.

1672. Grew, (Nehemiah.)—The Anatomy of Vegetables begun, with a general account of Vegetation founded thereon. London, in 12mo. with figures.

Traduite en Francois, par D. le Vasseur. Paris, in 12mo. en 1675. Second Edition, à Paris 1679, en 12mo.

Troisieme, à Leyde, 1685, en 12mo.

Quarta, Ibidem, cum variis experimentis de odoribus. Nehem, Grevii et Boylæi, et Physico tentamine de animâ Plantarum. N. Dedu, 1691. in 12mo.

Ex Gallicâ in Italicam Linguam versa à Francisco Maria Nigrifolio, cum observationibus variis.

In Linguam Latinam versa. Ext. in Misc. Ac. Nat.

Cur. an. 8. Wratislaviæ, 1678. in 4to.

1672. Hughes, (William.)—The American Physician, or a Treatise of the Roots, Plants, Trees, Shrubs, Fruits, Herbs, &c. growing in the English Plantations in America, in 12mo.

1672. Josselyn, (John.)—New England's Rarities, &c. in 12mo.

1672. Morison, (Robertus.)—Plantarum Umbelliferarum distributio nova per tabulas cognationis et affinitatis ex libro naturæ, observata et detexta. Oxonii in fol.

Plantarum Historiæ, Universalis Oxoniensis pars 2da. Oxoniæ, fol. 1680.

1672. Pars tertia, post auctoris mortem expleta et absoluta,
à Jacobo Bobarto. Oxoniæ, in fol. 1699.

1673. Grew, (Nehemiah.)—An Idea of a Philological History propounded, together with a continuation of the Anatomy of vegetables, particularly profecuted upon Roots, in 8vo. Latinè extat in Misc. Acad. Nat. Cur. an. 9. et 10. Wratislaviæ in 4to. 1680.

1673. Almond, (——— .)—The English Horseman, in 8vo.

1673. Evelyn, Jun. (———)—Of Gardens, in four Books, 8vo. This celebrated work has met with a reception almost equal to its excellence. It is a translation from the Latin of Renatus Rapinus, published at Leyden in 1672, in 12mo.

Mr. Gardiner, also in 1706, translated it.

1673. Ray, F. R. S. (John.)—Travels through Flanders, Germany, Italy and France, with a Catalogue of the Plants spontaneously growing in those parts, and observations topographical and moral. 2 vol. in 8vo. Volume the second contains Rawvolf's Journey into the Eastern Countries, and several other curious Travels, with three Catalogues of Plants. Catalogus Plantarum in exteris regionibus observatarum. A second Edition in 1738.

1674. ———, ———.—Discourse of Seeds, and the Specific Difference of Plants. Phil. Trans.

1675. Grew, (Nehemiah.)—The Comparative Anatomy of Trunks, together with an account of their vegetation grounded thereupon in two parts, in 8vo.

Latinè extat in Misc. Acad. Nat. Cur. an. 1680. 4to.

1675. Cotton, Esq; (Charles.)—The Planters Manual, in small 12mo.

1675. Evelyn, Esq; F. R. S. (John.)—Terra, a Philosophical Discourse of Earth, relating to the culture and improvement of it for Vegetation, and the propagation of Plants. Phil. Trans. afterwards in his works in fol. and in 8vo. and in 12mo.
1676. Cooke, (———.)—On Forest-trees, in 4to. in 1700. in 8vo.
1676. Sherley, (———.)—Curiosities of Scurvy-grafs, with cuts, in 8vo.
1676. Rea, (John.)—Flora, Ceres, and Pomona, in fol.
1677. Geddes, (———.)—Method of Bee-hives, in 8vo. Another Edition in 8vo. in 1721.
1677. Worlidge, (———.)—Art of Gardening, 2 vol. 8vo.
1678. Plot, L. L. D. (Robert.)—The Natural History of Oxfordshire, by Robert Plot. L. L. D. Keeper of the Ashmolean Museum, Oxford, in fol. with copper-plates.
1678. ———, ———.—Reasons for a Registry of lands.
1679. ———, ———.—Compleat Gardener, in 4to.
1680. Mascall, (Leonard.)—The Countryman's Jewel, in three books, in 8vo.
1680. Morison, (Robertus.)—Historia Universalis Plantarum Oxoniensis, tom. 2dus. in fol. Oxoniæ.
1681. Houghton, (———.)—Collection of Husbandry, 2 vol. in 4to. in fol. in 1697, and in 4 vol. 8vo. in 1727.
1681. Firmin, (Thomas.)—Proposals for Employing the poor, in 4to.

1681. Knox, (Robert,)—Historical Relation of the Island of Ceylon, in fol.

1682. Grew, (Nehemiah.)—An Idea of a Philological History of Plants and several other Lectures read before the Royal Society, in fol. 83 Plates.

1682. Raius, (Joannes.)—Methodus Plantarum nova, in 8vo.

1682. ———, ———.—Natural History of Coffee, Tea, and Tobacco.

1683. Lambert, (John.)—The Countryman's Treasure: or a Treatise of Oxen, Sheep, Hogs and Dogs, in 12mo.

1683. Hughes, (———.)—Flower Garden and Vineyard, in 12mo.

1683. ———, ———.—On the Management of Orange-trees, in 12mo. translated from the Dutch of Com-melyn, in fol.

1683. Meager, (———.)—English Gardener, with cuts, in 4to.

1683. Sutherland, (James.)—Hortus Medicus Edinburgensis: or a Catalogue of the Plants in the Physical Garden at Edinburgh, containing their most proper Latin and English Names, with an English alphabetical Index, in 8vo. and in 1692.

Mr. Sutherland was the Intendant of the Physic Garden at Edingburgh, and is mentioned by Dr. James Newton, (who published an Herbal about that period, consisting entirely of copper-plates) to have accompanied him in searching after the rare plants, natives of the neighbourhood of Edingburgh.

1684. Sibbald, (Robertus.)—Scotia Illustrata: five Prodr-mus Historiæ naturalis Scotiæ, Edinburgi in fol. cum 16 iconibus.

1684. ———, ———.—A necessary Companion, or the English Interest, in 12mo.
1684. Plattes, (Gabriel.)—Remedies against Famine, in 8vo.
1685. Grew, (Nehemiah.)—Anatomy of Plants, on 85 folio Copper-plates.
1685. Collins, (——— .)—System of Anatomy, treating of Man, Beasts, Birds, Fishes, Insects and Plants, in fol.
1685. ———, ———.---The Complete Planter and Cyderist, in 8vo.
1686. Plot, L. L. D. (Robert.)---The Natural History of Staffordshire, in fol.
1686. Raius, (Joannes.)---Historia Plantarum, species hactenus editas, aliasque insuper multas noviter inventas, et descriptas, complectens, 3 tomi. in fol.
Tomus secundus in 1687.
Tomus tertius in 1704.
Tomi tres conjunctim, in 1716, in fol.
Bannister's Catalogue of Virginian Plants is in this work: there are no plates to it.
1687. ———, ———.---The Gentlemens Jockey, in 8vo.
1688. Raius, (Joannes.)—Fasciculus Stirpium Britannicarum, in 8vo.
1689. Wharton, (Samuel.)—Schola Botanica, five Catalogus Plantarum quas ab aliquot annis in horto regio parisiensi studiosis indigitavit Tournefortius, à Samuele Whartono Anglo, vel potius Gulielmo Sherardo in lucem editus, Amstelodami, in 12mo.
1690. Raius, (Joannes.)—Synopsis methodica Stirpium Britannicarum, in 8vo.

1690. Editio altera, in 1696, in 8vo.

Editio tertia, multis locis emendatior et 459 circiter speciebus noviter detectis aucta, cum iconibus, in 1724 in 8vo. à Joan. Jac. Dillenio.

1691. Ray, (John,)—Wisdom of God manifested in the works of the Creation, in 8vo.

1691. Pluknetius, (Leonardus.)—Phytographia.

1692. Petiverius, (Jacobus.)—Musei Petiveriani Centuriæ decem, rariora naturæ continentes, viz. Animalia, Fossilia, Plantas ex variis Mundi plagis advecta, ordine digesta, et nominibus propriis signata.

Cent. 1. in 1692, and 1695, in 8vo.

Cent. 2, et 3, in 1698.

Cent. 4, 5, 6 and 7, in 1699.

Cent. 8, in 1700.

Cent. 9 and 10, in 1703.

1693. Evelyn, Esq. F. R. S. (John.)—Treatise of Orange-trees, with the raising of Melons, omitted in the French editions, translated from the French of Mr. De la Quintyenie, in fol. with cuts.

Mr. de la Quintyenie was Superintendant of the Royal Gardens of France, under Lewis the 14th. He came into England a visitor to Mr. Evelyn, who prevailed on him to communicate to him his famous method of cultivating melons. The offer of a considerable pension from Charles the Second, did not induce Quintyenie to stay, and superintend the Royal Gardens here.

He returned to serve his own master, who instituted a suitable office on purpose for him. The grounds about the palaces had been so finely cultivated, and improved, that Lewis always spoke of him with

1693. regret; and once assured his widow that, by his death, his king, and she, were equal sufferers.
1694. Raius, (Joannes.)—*Stirpium Europæarum extra Britanniam nascentium, Sylloge*, in 8vo.
1694. Pechey, (John.)—*Compleat Herbal of Phyfical Plants*, in 8vo.
1695. Moore, (Sir J——)—*The Gentleman and Farmer's Friend*, in 12mo.
1696. Sloanus, M. D. (Hans.)—*Catalogus Plantarum quæ in Insulâ Jamaicâ spontè proveniunt, vel vulgo coluntur*, in 8vo.
1696. Langford, (———.)—*On Fruit-trees*, in 8vo.
1696. Pluknetius, (Leonardus.)—*Almagestum Botanicum*.
1697. Houghton, (———.)—*Collection of Husbandry*, in fol. the first edition was in 1681.
1697. Meager, (———.)—*The Mystery of Husbandry*, in 12mo.
1697. Donaldson, (———.)—*Husbandry Anatomized*.
1699. Facio, (———.)—*Fruit-walls improved by inclining to the Horizon, with cuts by Grebelin*, in 4to.
1699. London and Wife.—*The Complete Gardener, with cuts*, in 8vo. These two authors were Gardeners of Eminence, at the period, in which they lived.
1699. Evelyn, Esq. F. R. S. (John.)—*Acetaria, or a Discourse of Sallets*, in 12mo.
1700. Leigh, (———.)—*Natural History of Lancashire, Cheshire, and the Peak in Derbyshire*, in fol.
1700. Worlidge, (———.)—*Art of Gardening*, 2 vol. in 8vo.

1702. Gilbert, (Samuel.)—The Florist's Vade-Mecum, by Samuel Gilbert, Phileremus, in 12mo. the third Edition.

In this small book is a particular description of the Roses cultivated in the English gardens at that period, and very accurately described.

1703. ———. (———.)---The Dutch Gardener, or Complete Florist, in fol, translated from the Dutch of Van Oosten.

1704. ———, (———.)---Dictionarium Rusticum: or a Dictionary of Husbandry, Gardening, Trade and Commerce, 2 vol. in 8vo, with cuts.
An Edition in 1726 and 1728.

1704. Smith, (———.)---The Husbandman's Magazine, in 12mo.

1705. Pluknetius, (Leonardus.)---Amaltheum Botanicum.

1705. More, (Sir John.)---England's Interest, or the Farmers Friend, in 12mo. another Edition in 12mo. in 1721.

1706. ———, (———.)---The Gentle Gardener, being Dialogues between a Gentleman and a Gardener.

1706. London and Wife.---The Retired Gardener, 2 vol. in 8vo.

1706. Mortimer, (———.)---A Treatise of Husbandry, 2 vol. in 8vo. The 2d Edition, in 1709, the 3d in 1712, the last, in 1761.

1707. Fleetwood, (———.)---Chronicon Pretiosum, or Account of English Money, Price of Corn &c. for the last 600 years.

1707. ———, (———.)---Curiosities of Nature and Art, in Husbandry and Gardening, in 8vo.

1707. Sloane, (Sir Hans.)—Voyage to Jamaica, with the Natural History of the Trees, Herbs, &c. in 2 vol. folio.

The second vol. was not published till 1725.

1708. Lecaen, (John Pole.)—Advice to the Army in Spain and Portugal, with the virtues of Plants growing naturally there, and not wild in England, in 8vo.

1708. Salmon, (———.)—Botanologia: The English Herbal, or History of Plants, with their Names in Greek, Latin and English, in fol.

1710. Dale, (Samuel.)—Pharmacologia, 2 tom. in 8vo. Editio. 2 da. in 4to. in 1735.

1712. James, (———.)—Theory and Practice of Gardening, and all that relates to fine Gardens with cuts, in 4to. Translated from the French of Le Brun.

1713. Petiver, (———.)—History of English Plants, with cuts in fol.

1715. Snow, (———.)—Arts Improvements, or Experiments in Building, Agriculture, Gardening &c. in 8vo.

1715. Clarke, (George.)—The Landed-Man's Assistant, in 12mo.

1716. Warder, (———.)—Monarchy of the Bees, in 8vo.

1716. Bradley, F. R. S. (Richard.)—History of Succulent Plants, containing the Aloes, Ficoides, Torch-thistles, Melon-thistles, and such others, as are not capable of an Hortus Siccus; in five Decades, in 4to. on 50 Copper-plates, with the descriptions also in Latin.

Decade, 1. 1716. Dec. 2. 1717. Dec. 3. 1725.

Decade, 4. 1727. Dec. 5. 1727.

1719. (Bradley.)—New Improvement in Planting &c. 8vo.
1721. (——.)—A Philosophical Account of the Works of Nature, remarkable in the Mineral Vegetable, and Animal Creation, with cuts in 4to.
1723. (——.)—Proposals for the Improvements of Waste Lands, in 8vo.
1724. (——.)—Improvements of Planting and Gardening, to which is added the scarce and valuable tract, Herefordshire Orchards, in 8vo.
1724. (——.)—Treatise of Husbandry and Gardening, 3 vol. 8vo.
1726. (——.)—Survey of ancient Husbandry, 8vo.
1726. (——.)—On Husbandry and Gardening, 4 vol. 8vo.
1726. (——.)—Experimental Husbandman and Gardener, and a new method of Improving Estates and Gardens, with cuts in 4to.
1726. (——.)—British Housewife and Gardener's Companion, with cuts, 2 vol. 8vo.
1726. (——.)—Family Dictionary, containing the most approved methods for breeding Cattle, Improving Estates and Gardening, with methods to destroy Vermin, and divers other Arts. 2 vol. in fol.
1726. (——.)—Discourses of Earth, Water, Fire and Air, relating to Plants, 8vo.
1728. (——.)—Gentleman and Gardener's Calendar, 8vo.
1728. (——.)—Dictionarium Botanicum, or a Botanical Dictionary, for the use of the curious in Husbandry and Gardening, 2 vol. 8vo.
1729. (——.)—Gentleman and Farmer's Guide in regard to Cattle, with cuts in 8vo.

1729. (Bradley.)—A General Treatise of Husbandry and Gardening, containing a new System of Vegetation, illustrated with many observations and experiments formerly published monthly: and now methodised and digested under proper heads, with additions, and great alterations, in four parts, in two vol. adorned with cuts. The exact date of this work, by the title-page being defaced, I cannot fix.

1736. (—---.)—The Country Gentleman and Farmer's Monthly Director, containing necessary instructions for the Management and Improvement of a Farm in every month of the year, in 8vo. the sixth Edition, with Additions.

Mr. Bradley was a Fellow of the Royal Society, and Professor of Botany in the University of Cambridge: the public is very much indebted to him for the many valuable treatises in Agriculture, Botany and Gardening, his works being frequently reprinted with additions from time to time, have made it very difficult to distinguish them all properly, particularly as there has never been one compleat edition of them: as most of them were printed within a very few years, I have inserted them all together.

1717. Carpenter, (—---.)—Retired Gardener, with cuts, in 8vo.

1717. Cooke, (—---.)—On Forest-trees, in 8vo. second edition, very much corrected, another in 1717, and 1724.

1717. Jacob, (—---.)—The Country Gentleman's Vademecum, in 12mo.

1717. Lawrence, (—---.)—Clergyman's Recreation with cuts, in 8vo.

1717. Lawrence, (———.)---Art of Gardening, and Fruit-Gardeners Calender, in 8vo.

1717. ———, (———.)—A Treatise on Horsemanship, discovering the surest marks of their beauty, strength, goodness, faults &c. 2 vol. in fol. translated from the French of Solieyfell.

1717. Switzer, (Stephen.)---Icknographia Rustica; or Gardeners Recreation, with cuts, in 3 vol. 8vo.

1717. ———, ———.---The Practical Fruit-Gardener, being the newest and best method of raising, planting, and pruning all sorts of Fruit-trees agreeable to the experience and practice of the most eminent Gardeners and Nurserymen, with cuts, in 8vo.

1717. ———, ———. — The Practical Kitchen-Gardener, 2 vol. in 8vo.

1718. Blair, (———.)---Botanic Essays, containing the Structure, Fructification and Generation of Plants and Flowers, in 8vo.

Another Edition in two parts in 1720, in 8vo.

1719. Shaw, (———.)---Travels to Barbary, the Levant, Egypt &c. with curious observations, and a Catalogue of some rare Plants, with cuts in fol.
Second Edition in ———, in 4to.

1719. Barham, (———.)---Essay on the Silkworm, in 8vo.

1719. ———, ———.---Institutions of Botany, translated from the Latin of Tournefort, with large additions from Ray, Gerard, Parkinson &c. in vol. 4to. translated for Robert Bonwicks.

1720. Blair, (Patrick.)---Botanic Essays, in 8vo.

1720. ———, ———.---Sciagraphia Historiæ Naturalis Oxonii, in 8vo.

1721. Agricola. M. D. (George, Andrew.)—New Method of improving Estates and Gardens, with some other experiences made on that system, in 8vo. 2d. edition in 1726 in 4to.

This work was written in German by Dr. Agricola of Ratisbon, in 1716, and translated into English by Mr. Bradley, with some additions.

1721. Moore, (Sir John.)---England's Interest, or the Gentleman and Farmers Friend, with directions to make Cyder-Royal, in 8vo. vide p. 226 of the Tracts.

1722. Millar, (Joseph.)—Botanicum Officinale, or a Compendious Herbal of all such plants as are used in the practice of Physick, in 8vo.

1723. Molesworth, (Lord.)—Some Considerations for the promoting of Agriculture, and employing the Poor. Dublin in 4to.

1723. Blair, (Patrick.)—Pharmaco-Botanologia: or a Dissertation on all the British indigenous and garden-plants of the new London Dispensatory, in seven Decades, in 4to.

Decade 1. 1723. Dec. 2. 172 . Dec. 3. 1727. Dec. 4.
Decade 5. Dec. 6. Dec. 7.

1723. Knowles. (Georgius.)—Materia Medica Botanica, Poema, quo quadraginta plantæ describuntur. fol.

1724. ———, ———.—Treatise on the Manner of fallowing Ground, raising of Grass-seeds, and training Lint and Hemp, in 12mo.

1724. Dillenius, (Joannes Jacobus.)—Synopsis methodica Stirpium Britannicarum. Editio tertia, multis locis emendatior et 450 circiter speciebus noviter detectis, aucta, cum iconibus, in 8vo.

Editio prima à Raio, in 1690.

1724. ——— The Natural History of Chocolate, in 8vo.
1725. Derham, (William.)—Observations about Wasps, and the Difference of their Sexes. No. 382. Phil. Transf.
1725. Douglass, M. D. (James.)—*Lilium Sarniense*, or a Description of the Guernsey Lily, with a botanical Dissection of the Coffee-Berry, with 2 figures, in fol. A Botanical Description of the True Saffron, or *Crocus autumnalis sativus*. Phil. Tr. n. 380.
1726. Lawrence, (———.)—System of Agriculture and Gardening, in five books, in fol.
1726. ———, ———.—Proposals for Draining Bedford Level, in 8vo.
1726. ———, ———.—The Gentleman Farmer, or certain Observations on the Husbandry of Flanders compared with that of England, in 12mo.
1726. Whitmill, (Benedict.)---Gardeners Universal Calendar, 8vo. 2s.
1727. Douglas, M. D. (James)---*Arbor Yemenis fructum Cafè ferens*, or a Description and History of the Coffee-tree, with a Supplement, in fol.
1727. Hales, B. D.---F. R. S. (Stephen.)—Statical Essays: containing Vegetable Staticks; or an account of some statical Experiments on the Sap in Vegetables. Being an Essay towards a natural History of Vegetation: of use to those who are curious in the Culture and Improvement of Gardening, &c. Also a Specimen of an Attempt to analyse the Air, by a great variety of Chymo-Statical Experiments, read before the Royal Society, in 2 vol. 8vo. The second vol. in 1731. The third Edition in 1738. The fourth Edition in 1769, with 19 Copper-plates.

1727. Threlkeld, (Caleb.)—*Synopsis Stirpium Hibernicarum*,
Dublini, 8vo.

1727. Houghton, (———.)—*Collection of Husbandry, &c.*
in 4 vol. 8vo.

This work first appeared periodically, and was now
reprinted under the Inspection of Mr. Bradley.

1727. ———, ———.—*The Vineyard; being a treatise,*
shewing the manner of planting and cultivating vines,
in foreign parts: directions of making Wines: me-
thod of planting Vines in England. New experi-
ments in grafting and inoculating all sorts of fruits;
the best manner of raising several sorts of com-
pounded Fruits, in 8vo.

1727. Douglass, M. D. (James.)—*A Voyage to Arabia Fe-*
lix: with an Account of the Coffee-tree, and in
what manner it first came to Europe, 8vo.

1727. Martyn, (Joannes.)—*Methodus Plantarum circa Can-*
tabrigiam nascentium, in 12mo.

1728. Martyn, (John.)—*Four Decades of Rare Plants, with*
fifty-six figures of the Plants coloured, in large Fo-
lio, by John Martyn, Professor of Botany in Cam-
bridge.

His First Botanical Lecture in London, in 1729.
Tournefort's History of Plants growing about Paris,
with many additions, and accommodated to the
Plants of Great Britain, 2 vol. in 8vo. another edi-
tion in 1732 and 1736.

1728. Langley, (Batty.)—*Method of Improving Estates by*
Trees, in 8vo.

——— *Principles of Gardening, with cuts, in 4to.*

1729. ——— *Pomona, or Fruit-Gardener, with 79 plates*
in fol.

1729. ———, (———.)—An Essay on Inclosing &c. in Scotland, Edinb.
1729. Stafford, Esq. (Hugh.)---A Dissertation on Cyder and Cyder-fruit, by H. S. Esq. of Pynes in Devonshire.
1729. Evelyn, Esq. F. R. S. (John.)—Sylva: or a Discourse of Forest-Trees: Terra, or a Philosophical Essay on Earth; with all the lesser pieces relating to Agriculture and Gardening, in fol. fifth and last Edition.
1729. Switzer, (Stephen.)---A compendious method of raising of Italian Brocoli, Spanish Chardons, Celeriac, Fennochia, and other foreign Kitchen Vegetables.
An account of Lucern, Saint-Foin, Clover, and an account of burning of Clay, 8vo. 2 Ed. in 1735.
1730. Rand, (Isaacus.)---Index Plantarum officinalium, quæ ad Materiæ Medicæ scientiam promovendam in Chelseyno horto ali et demonstrari, curavit Societas Pharmacopolarum Londinensium, in 8vo.
Plantarum 518 nomina, et indicium partis cujusque, quæ in medicîna adhibetur.
1730. Wright, (Edward.)---Observations made in travelling through France and Italy, in 4to.
In these Travels are described the most curious plants and trees, with the culture of the Fields and Vineyards.
1730. The Gardeners Catalogue.— Catalogus Arborum Fruticumque tum Exoticarum tum Domesticarum &c. or the Gardeners Catalogue.
The Gardeners Catalogue of Trees and Shrubs, both Exotick and Domestick, which are hardy enough to endure the Cold of our Climate in the open Air, ranged in an alphabetical order, according to their
most

1730. most approved Latin Names ; with an index of the English Names referring to the Latin.

To which is added the Characters of each Genus in English, and a short account of the different growths of each tree or shrub, illustrated with 21 Copper-Plates, in which there are above 50 beautiful Plants which were designed by the famous Mynheer Van Huysum, and are represented in their proper colours. Done by a Society of Gardeners, price 1*l.* 11*s.* 6*d.* stitched, in fol.

John Alston, near Chelsea College.

Robert Furber, at Kensington.

William Hood, at the Wheatsheaf near Hyde-Park-Corner.

Philip Miller, at the Physic Garden in Chelsea.

Obadiah Lowe, at Battersea.

John Thompson, at the Rose in Chelsea.

Christopher Gray, at Fulham.

Francis Hunt, at Putney.

Moses James, at Standgate.

George Singleton, at the Neathouses.

Benjamin Whitmill, at Hoxton.

Richard Cole, at Battersea.

Samuel Hunt, at Putney.

Stephen Bacon, at Hoxton.

The Origin of Mr. Miller's Gardeners Dictionary arose from this work ; he was Clerk to the Gardeners and Nurserymen, the most eminent at that period, who formed themselves into a Society to compile this work : their plan not going on after this first publication, he soon after published the first edition of his Dictionary, from the papers entrusted to his care.

1730. Cowel, (——— .)---Curious and Profitable Gardener, containing the newest methods for improving land by Grain or Seed, also a description of his great Aloe, and other Exotics, with his Manner of preserving them in Winter, 8vo.

1730. Brookes, M. D. (Richard.)---Natural History of Chocolate, 8vo.

1730. Richards, (J ——— .)---The Gentleman's Steward, 8vo.

1730. Rye, (George.)---Observations on Agriculture, Dublin, 8vo.

1730. Bohun, Esq; (William.)---The Law of Tythes, shewing their Nature, Kinds, Properties, and Incidents, by whom, to whom, how, and in what courts to be sued for and recovered; what Things, Lands or Persons are charged with, or exempted therefrom, with the nature, incidents and effects of customs, prescriptions, real compositions, Modus Decimandi, Libels, Suggestions, Prohibitions, Consultations, &c. wherein all the Statutes and adjudged Cases, relative to the subject, are introduced and considered, by William Bohun, of the Middle Temple, Esq;

1731. Catesby, Esq; F. R. S. (Mark.)---Natural History of Carolina, Florida, and the Bahama Islands, in French and English, in two volumes, in fol. with two hundred copper-plates.

In 1743, the 2d vol. appeared, and in 1748 an Appendix containing 20 plates more.

In 1752, a very magnificent Edition of this work was published, under the inspection of Mr. Edwards, on Royal Paper, in fol. with the cuts finely coloured. In 1750, it was translated into German, and published at Nuremberg.

1731. Miller, (Philip.)---Gardeners Dictionary, in fol. 1*l.* 10*s.*
 2d Ed. in 1733, 1*l.* 10*s.* 3d. Ed. in 1739, in 2 vol.
 4th Ed. in 1739. 5th Ed. in 1743. 6th Ed. in 1752.
 7th Ed. in 1759, 3*l.* 3*s.* and 8th Ed. in 1763, 3*l.* 3*s.*
 Abridged in 2 vols. 8vo. in 1739, the 3d vol. in
 1740, 18*s.* In 1763, the 5th Ed. of the Abridge-
 ment, in 4to. 1*l.* 5*s.*

———— Gardeners Calendar, in 8vo. 4*s.*

To 1765, there have been 14 Editions, all in 8vo.

In 1755, Figures of plants adapted to the Dictio-
 nary were published in 5*s.* Numbers, and finished on
 300 plates in 1760, 12*l.* 12*s.* half bound.

In 1758, method of cultivating Madder as practised
 in Zealand, in 4to.

In 1764, Elements of Agriculture, in 2 vol. 8vo,
 translated from the French of Duhamel.

1731. Switzer, (Stephen.)—Dissertation on the true Cytisus
 of the Antients, for the Improvement of Barren
 Land, 8vo. 1*s.* 6*d.*

1731. ———, ———.—A new Method of Tanning without
 Bark, 6*d.*

1731. Tull, Esq ; (Jethro.)—New Horse-hoeing Husbandry ;
 or an Essay on the Principles of Tillage and Vege-
 tation, in fol. 6*d.*

1731. Lawrence, (———.)—Duty of a Land-steward.

1731. Short, (Thomas.) —Explanation of the technical
 Words made use of in Botany.

1732. Martyn, F. R. S. (John.)—History of Plants growing
 about Paris, in 2 vol. 8vo. translated from the
 French of Tournefort. 10*s.*

1732. ———, ———.—A compendious Account of the
 whole Art of breeding, nursing, and right ordering
 the Silkworm, with figures, stitched 2*s.*

1732. ———, ———.—Voyage to Arabia Felix, with a particular account concerning the Tree and Fruit of Coffee, with cuts, in 8vo. translated from the French of M. Dela Roque, 5s.
1732. ———, ———.—Essay against Inclosing Common Field-Land, &c.
1732. ———— Practical Farmer, &c. 2s.
1732. Switzer, (Stephen.)—Country Gentleman's Companion, or Antient Husbandry restored, and Modern Husbandry improved, 1s. 6d.
1732. ———, ———.—The Great Improvement of Commons that are inclosed for the advantage of Lords of the Manor, the Poor, and the Public, with methods of enriching every sort of soil and raising of timber. To ripen Fruit at all times of the Year; an improvement in raising Mushrooms, Cucumbers, &c. the manner of making and mending roads at a small expence, 1s.
1732. Coker, (N ———.)---Survey of Dorsetshire, containing the Natural History of the Country, in fol.
1732. Moore, (Sir Thomas.)—Flower Garden displayed, containing above four hundred representations of the most beautiful Flowers coloured to the life, with the Art of raising of Flowers in the depth of Winter, as it is practised by Sir Thomas Moore, with 12 copper-plates to represent the 12 seasons of the year, in 4to. a 2d Edition in 1734, 7s. 6d.
1732. Dillenius, (Joannes Jacobus.)—Hortus Elthamensis, seu Plantarum rariorum quas in horto suo Elthami in Cantio, coluit vir præstantissimus, Jacobus Sherard, delineationes et descriptiones; quarum historia, vel planè non vel imperfectè, à rei herbariæ scriptoribus tradita fuit, 2 vol. in fol. Tab. 437. 4l. 14s. 6d.

1732. Murray, (Sir Alexander.)---An Abstract of an Essay on the Improvement of Husbandry, and Working of Mines, 1s.
1732. ———, ———.---The Nature and Method of planting, manuring, and dieting a Vineyard, in 8vo.
1732. Ellis, (William.)---Complete Modern Husbandry. This work came out periodically, and was completed about 1744, in 8 vols. in 8vo. 2l. 2s. An Edition in 1750, and in 1752, an Abridgement in 2 vols. 8vo. in 1773.
1733. Tull, Esq; (Jethro.)---Essay on Horse-hoeing Husbandry, in folio, 10s.
1733. Dublin Society.---Instructions for Planting and Managing Hop-poles, Dublin, 1s.
1733. Alleyne, (James.)---New English Dispensatory, 8vo.
1733. ———, ———.---Interest of Scotland considered. Edingburgh, 8vo.
1734. Hughes, (William.)---The Flower-Garden, in 12mo.
1734. Thompson, (George.)---Short method of discovering the virtues of Plants, in 8vo.
1734. ———, ———.---The true Interest of the Land-owners of Great Britain, or the Husbandman's Essay, 1s.
1734. Rowe, Esq; (Jacob.)---All sorts of Wheel-Carriages improved, 1s.
1734. ———, ———.---Discovery of the true cause of the wonderful multiplication of Corn, with some general remarks on the nature of Trees and Plants, translated from the Latin of Dr. Wolfius, 1s.
1734. Albine, (Eleazer.)---Natural History of English Insects, 1s. coloured.

1734. Thomson, (George.)---Short method of discovering the Virtues of Plants, in 8vo.
1735. ———, ———.---An Account of a Threshing Machine, invented at Dalkeith in Scotland, which in a minute gives 1320 strokes, as many as 33 men. It goes while a watermill is grinding, but may be turned with wind or horse.
1735. Tull, Esq; (Jethro.)---Supplement to his Essay, in fol.
1735. Moore, (John.)---Columbarium, or the Pidgeon-house, being an Introduction to a Natural History of tame Pidgeons, 1s.
1735. Bracken, M. D. (Henry.)—The Gentleman's Pocket Farrier, with remarks, 1s.
2d. Edition in 1743, 2s. 3d. Edition 1744.
1735. ———, ———.—Gentleman and Farmer's Guide, in 8vo. 1s. 6d.
1735. Miller, (Philip.)---Appendix to the Gardeners Dictionary, in fol. 1s.
1736. Humphreys, (D ———.)---Nature Displayed, with copper-plates in 8 vol. 8vo. translated from the French of the Abbè Pluche.
1736. Logan, (James.)---Experiments and Considerations on the Generation of Plants, in 8vo. in Latin and English, 1s.
1736. Dublin Society.—Weekly Observations relating to Agriculture, in 12mo. Dublin.
1736. ——— Ways and means to raise the Value of Land, 8vo.

1736. Salmon, (Nicholas.)—Antiquities of Surry, with some account of the Natural History of the Country, in 8vo.
1737. Allen, (Matthew.)—The Farrier's Assistant; or an Essay on the Nature and Proceedings of Distempers incident to Horses.
1737. Savage, Esq. (Richard.)—Of Public Spirit, in Regard to Public Works. An Epistle to the Prince of Wales.
1737. Bracken, M. D. (Henry.)—Farriery improved; a complete Treatise of the Art, with an account of the Drugs used therein, in 12mo. 3s.
1737. Dale, (Samuel.)—Pharmacologia, seu Manuductio ad Materiam Medicam, in 4to.
This work was first published in 1693, and now revised by the Author 44 years after his first Edition.
1737. Blackwell, (Elizabeth.)—Curious Herbal, in 2 vol. in folio, on 500 Copper-plates. 2d. vol. in 1738. Republished at Nuremberg by Trew, in 1748.
1737. Blackstone. (Joannes.)—Fasciculus plantarum circa Harefield sponte nascentium, cum appendice ad loci naturam spectante, in 12mo.
1738. Shaw, D. D. (Thomas.)—Travels and Observations relating to several parts of Barbary and the Levant. Oxford, fol. Traduite en françois, a la Haye, 1740, in 4to. 2 vol. Seperatim, Catalogus Plantarum, quæ in variis Africae et Asiae partibus collegit T. S. Oxonii. in fol. A supplement added in 1746.
A second edition in 4to. much increased in 1757.
Translated into German, in 1765, 4to. at Leipfig.
This work was inserted by mistake in 1719.

1738. Deering, (C —.)—A Catalogue of Plants naturally growing in England, more especially about Nottingham, in 8vo. Nottingham.
1738. Ray, (John.)—Travels through Flanders, Germany, Italy and France, with a Catalogue of the plants spontaneously growing in those parts, in 2 vol. 8vo. 2d. edition improved with copper-plates, 12s. Vol. 2d. contains Rawvolf's Journey into the Eastern Countries, and several other curious travels, with three Catalogues of Plants.
1738. Tull, Esq. (Jethro.)—Addenda to the Essay on Horsehoeing; which with the supplement published last year, set forth the Principles of Agriculture, and the practice of them, in small fol. 6d. the whole 13s. An edition in 8vo. in 1762.
A Conclusion to his Essay in 1739.
1738. ———, ———.—Some Thoughts on the Tillage of Ireland, 6d.
1739. Rand, (Isaacus.)—Horti Chelfeyani Index compendiarius, in 8vo. 3s. 6d.
Genera 793. Species permultæ, nomina sola.
1739. Dublin Society.—Weekly Observations were this year began by that Society to be published, in 12mo.
1739. Trowel, (Samuel.)—New Treatise of Husbandry and Gardening, in 12mo. 2s. 6d.
In German at Leipzig in 1750, in 8vo.
1739. Bradley, F. R. S. (Richard.)—A Philosophical Account of the Works of Nature, remarkable in the Mineral, Vegetable and Animal Creation, 2d. edition enlarged, in 8vo. 6s.

1739. Clayton, (Joannes.)—*Flora Virginica exhibens plantas, quas in Virginia I. Clayton collegit, Methodo sexuali disposuit*, I. F. Gronovius.
1739. Brickwell, (I——.)—*Natural History of North Carolina*, in 8vo. Dublin.
1740. Bracken, M. D. (Henry.)—*Farriery improved*, vol. second, in 12mo. 3s.
1740. Dinsdale, (I——.)—*The Modern Art of Breeding Bees*, 6d.
1740. Dublin Society.—*Essays on Trade and Husbandry*, in 8vo. 4s.
1740. Gray, (Christopher.)—*A Catalogue of Trees and Shrubs which are propagated for Sale, by C. G. Nurseryman at Fulham*.
1741. Blackwell, M. D. (Alexander.)—*A New Method of improving cold, wet and barren Land, particularly clayey Ground, practised in Great Britain*, in 8vo. Translated into Swedish, at Stockholm in 1745, in 4to. The Dr. also published a treatise in Swedish at Stockholm, in 1746, in 12mo.
1741. Dillenius, (Joannes Jacobus.)—*Historia Muscorum*, in 4to. maj. Oxonii.
1743. Baker, (Henry.)—*The Microscope made Easy*, in 8vo. 2d vol. in 1753, in 8vo.
1743. Lawrence, (———.)—*Duty of a Land-Steward*, third edition, in 8vo.
1743. Catesby, Esq. F. R. S. (Mark.)—*Natural History of Carolina &c.* vol. 2d. in fol. vide 1731, and 1752.
1743. Maxwell, (———.)—*Treatise on Agriculture in Scotland*, in 8vo. 6s. Edinburgh.

1743. Pococke, (Richard.)—A Description of the East, in 2 vol. in fol. vol. 2d. in 1745.

He describes 319 plants found in Crete, and other parts of the East.

Translated into German by Windheim in 4to. in 1755.

1743. Tuffer, Esq. (Thomas.)—Five Hundred Points of Husbandry, with Notes and Observations, 3s. vide 1562.

1744. ———, ————. Adam's Luxury and Eve's Cookery, or the Kitchen-Garden displayed, in 8vo. 1s. 6d.
A 2d. Edition in 1756.

1744. Claridge, (———.)—Shepherd of Banbury's Prognostics on the Weather, in 8vo.

1744. Ellis, (William.)—Complete Modern Husbandry, containing the Practice of Farming: Cheltern and Vale-Farming: Improvements on Fruit and Timber-trees &c. in 8 vol. in 8vo. 2l. 2s.
An Edition in 1750 and 1752.

1744. Gibson, (———.)—The Husbandry of L. Junius Moderatus Columella in 12 books, with his book concerning Trees, translated from the Latin, in 4to. 15s.

1744. Hartlib, (Samuel.)—A Treatise concerning the Husbandry and Natural History of England, in 8vo. 2s.
This work was ignorantly published under the Name of that great Patron and Encourager of Agriculture, Sir Richard Weston, but it is only a poor abridgement of Hartlib's Legacy.

1744. James, M. D. (Richard.)—A Medicinal Dictionary, including Physic, Surgery, Anatomy, Chymistry and Botany, in all their Branches relative to Medicine, in 3 vol. fol.

1744. Improving Estates.—A new, easy, and certain method for Improving of Estates 30 per cent. per annum, without charge and labour, 4d.
1744. Parsons, M. D. (James.)—The Microscopical Theatre of Seeds, 1s. 4to.
1744. Smith, (Charles.)—The Antient and Present State of the County of Down, in 8vo. Dublin.
1744. Swine's Flesh.—A cheap and easy Method of Improving Swine's Flesh, by a German Method of Feeding, 6d.
1744. Thorley, (———,)—The Female Monarchy, being an Enquiry into the nature, order and Government of Bees, in 8vo.
1744. Wilson, (John.)—Synopsis of British Plants in Ray's method, with a botanical Dictionary, in 8vo. Newcastle.
1745. Pope, Esq; (Alexander.)—A Plan of Mr. Pope's Gardens and Grotto, with a Character of his Writings 1s. 6d.
1745. Short, (Thomas.)—Medicina Britannica, or a Treatise on such Physick Plants as are found in the Fields or Gardens of Great Britain, in 8vo. 2d. edition in 1747.
1746. Blackstone, (Joannes.)—Specimen Botanicum, quo Plantarum plurimum Angliæ indigenarum, loci natales illustrantur, in 8vo.
1746. Adams, (George.)—Micrographia Illustrata, in 4to.
1746. James, M. D. (Richard.)—Treatise on Tobacco, Teas, Coffee and Chocolate, in 8vo. translated from Simon Pauli.
1746. Smith, (Charles.)—The Antient and Present State of the County of Waterford, in 8vo. Dublin.

1746. Stevenson, (David.)—The Gentleman-Gardener Instructed, in 12mo.

1746. Pharmacopœia Collegii Regalis medicorum Londinensis, 4to. magn. Ed. 2. in 4to. in 1751. Francof. in 8vo. in 1748, and 1762. Translated into English with Notes, by H. Pemberton, in 8vo. in 1746. Ed. 2d. 1749.

Traduite en Francois, à Paris in 1761, en 4to.

1747. Brownrigg, M. D. (William.)—On the Electrifying of Plants. Philos. Trans. No. 482.

1747. ———, ———.—The compleat Florist, consisting of 100 copper-plates of Flowers. 5s.

The same coloured and bound. 15s.

1747. Smith, (J ———.)—Chronicon Rusticum et Commerciale, or the Memoirs of Wool, 2 vols. 8vo. 12s.

1747. Thickness, (———.)—Treatise on Foreign Vegetables, in 8vo. 5s.

1747. Wheeler, (James.)—The Modern Druid, in 8vo.

1748. Brownrigg, M. D. F. R. S. (William.)---The Art of making Common Salt, 8vo. with copper-plates. 5s.

1748. Catesby, Esq ; F. R. S. (Mark.)---An Appendix to the Natural History of Carolina, in fol. containing 20 plants.

1748. Gibson, (———.)---Of the Diseases of Oxen and Horses, and the Art of curing them, translated from the Latin of Vegetius Renetus, in 8vo. 5s.

1748. Hill, M. D. (John.)---A General Natural History, or a new and accurate Description of Animals, Vegetables and Minerals, in 3 vols. fol. vol. 1. 1l. 5s. vol. 2. in 1751.

1748. ——— Theophrastus, Greek and English, with Notes critical and philosophical, in 8vo. 4s.

1748.

1748. Logan, (I——.)—Experiments and Considerations on the Generation of Plants, in Latin and English, 1s.
1748. Miller, Esq; F. R. S. (Philip.)—Gardeners Calendar, with the medicinal Plants now first added, in 8vo. 4s.
1748. Stowe Gardens.—A Dialogue upon the Gardens of Lord Viscount Cobham at Stowe, in Bucks, 1s.
1749. Barrow, (John.)—Medical Dictionary or an Explication of all the Terms used in Physic, Anatomy, Surgery, Chymistry, Pharmacy and Botany, in 8vo.
1749. Hill, Esq; (Aaron.)—Directions for Cultivating Vines in America.
1749. Wilkes, (Benjamin.)—English Moths and Butterflies, with the Plants, Flowers and Fruits whereon they feed and are usually found, in fol. copper-plates coloured.
The Plants are Engraved by Ehret and Van Heysum.
1749. ———, ———.—A method of Tanning without Bark, Dublin.
1750. ———, ———.—A Dissertation concerning the Origin and Antiquity of Barley Wine, in 4to. Oxford.
1750. Gibson, (William.)—A new Treatise on the Diseases of Horses, in 4to. 1l. 1s.
Another Edition in 2 vol. 8vo. 12s.
1750. Heath, (Robert.)—Natural History of the Islands of Scilly, in 8vo.

1750. Hughes, M. D. (Griffith.)—Natural History of Barbadoes, in fol. with copper-plates.
Another Edition on Royal Paper.
1750. Short, (Thomas.)—Discourse on Tea, Sugar, Milk, made Wines, Spirits, Punch, Tobacco, with plain and useful rules for gouty people, in 8vo.
1750. Smith, (Charles.)—Antient and Present State of the County of Cork, 2 vol. in 8vo. Dublin.
1751. Bartram, (John.)—Observations on the Inhabitants, Climate, Soil, divers productions, &c. made in his travels from Pensylvania, to Oswego and the Lake Ontario, in the year 1743, in 8vo.
1751. ———, ———.—A new Treatise on British and Foreign Vegetables, used in the Practice of Physick, being an improvement of Geoffroys Materia Medica, in 8vo.
1751. Hill, M. D. (John.)—A General Natural History of Plants of the different parts of the world, in fol. 11. 1s.
1751. ———.—Historia Materiæ Medicæ, in 4to.
1752. Alston, (Carolus.)—Index Medicamentorum simplicium triplex, Edinburgh.
1752. Armstrong, (John.)—History of the Island of Minorca, in 8vo.
1752. Catesby, Esq; F. R. S. (Mark.)—Natural History of Carolina, Florida, and the Bahama Islands, with 221 Copper-plates, finely illuminated, and splendidly bound, in 2 vol. fol. R. P. 16l. published by George Edwards Esq; F. R. S. A Linnæan Index in 1770, by Forster.

1752. Hill, M. D. (John.)—The Inspector, or Essays in Natural History and Philosophy, in 2 vol. 12mo.
1752. Miller, Esq; F. R. S. (Philip.)—The Gardeners Dictionary, in fol. 6th Edition.
1752. Parsons, M. D. F. R. S. (James.)—Philosophical Observations on the Analogy, between the Propagation of Animals, and that of Vegetables, in 8vo.
1752. ———, ———.—Pharmacopœa Edinburgensis Pauperum, in 8vo, Edinb. Translated into English in 1753, in 8vo.
Another Edition in 1758, 1759 and 1763, in 8vo.
Published at Francfort, in 1759 and 1760, and at Geneva in 1761, in 8vo.
1753. Alston, (Carolus.)—Professor Edinburgensis, Tirocinium Botanicum Edinburgense, in 8vo. Edin.
1753. Bartlett, Surgeon, (John.)—The Gentleman's Farriery.
1753. Doddsley, (R ———.)—Public Virtue, a Poem in three Books on Agriculture, Commerce and Arts.
1753. ———, ———.—The Kitchen and Flower-Garden complete, in 4 sheets, 4s.
1753. Pullein, A. M. (Samuel.)—The Silkworm, translated from the Italian of Vida, in 8vo. 4s.
1753. Rocque, (——— .)—Treatise on the Hyacinth; the manner of cultivating that Flower.
1753. Stafford, Esq; (Hugh.)—A Treatise on Cyder-making founded on long practice and experience, with a catalogue of Cyder-Apples of character. To which is prefixed, a Dissertation on Cyder and Cyder-fruit, by Hugh Stafford, Esq; of Pynes in Devonshire, 2s.

1753. Templeman, (Peter.)—Curious Remarks and Observations in Physic, Anatomy, Chemistry and Botany, 8vo.
1753. Warren, (Sir Peter.)—A genuine Account of the manner of making the best Russian Pot-ashes, communicated to the Editor, by the late Sir Peter Warren, 6d.
1753. Webb, (William.)—A Catalogue of Seeds and Roots, under their proper heads, by W. Webb, Seedsman, 1s.
1753. Woollen Manufacturers—A short View of the Rise, Progress and Establishment of the Woollen Manufacturers in England, 1s.
1753. ———— A Review of the Manufacturers Complaints against the Wool-growers, part the 1st, 1s.
1753. Lewis, M. D. (William.)—The New Dispensatory, containing the Theory and Practice of Pharmacy, 8vo.
1754. Alston, (Charles.)—A Dissertation on Botany, translated from the Latin of Dr. Alston, 1s. 6d.
1754. ———, ———.—Select Essays on Commerce, Agriculture, Mines and Fisheries, in 8vo. 6s.
1754. Hill, M. D. (John.)—Useful Family Herbal, 8vo. 5s.
1754. ———, ———.—Gentleman, Traveller and Husbandman's best Companion, 1s. 6d.
1754. S ———, (R ———.)—Gardener's Pocket-book, or Country Gentleman's Recreation, being the Kitchen, Fruit, and Flower-Garden displayed in Alphabetical order, by R. S. Gentleman. 6d.
1755. ———, ———.—A new System of Agriculture, by which a Land-owner may double the value of his Estate in one year. 2s. 6d.

1755. Boate and Molineux---Natural History of Ireland, in 4to. 10s. 6d. Dublin.

1755. De la Fosse, (———.)---Observations on Horses, in 12mo. 3s. 6d.

1755. Ellis, Esq; F. R. S. (John.)---An Essay towards a Natural History of Corallines, and other natural productions of the like kind, commonly found on the coasts of Great Britain and Ireland, in 4to.

1755. Hill, M. D. (John.)---Method of raising Trees from the Leaves, in 8vo. 1s.

1755. Hitt, (Thomas.)---A Treatise on Fruit-trees, with copper-plates, in 8vo. 6s. 2d Ed. 3d Ed. in 1768.

1755. Miller, Esq; F. R. S. (Philip.)---A Set of Figures of Plants, on 300 fol. copper-plates, adapted to the Gardeners Dictionary, in 2 vols. fol. 6l. 6s. coloured 12l. 12s.

Published in Monthly Numbers, and finished in 1760.

1755. Pontoppidan, (———.)---Natural History of Norway, in fol.

1755. Stephens, (T———.)---The Method and plain Process for making Pot-ash, equal, if not superior, to the best foreign, in consequence of the late Act of Parliament. 1s. 6d.

1755. Wickham, (Moses.)---The Utility and Advantages of broad, high Wheel-Carriages, demonstrated rationally and mathematically. 1s.

1755. Douglass, M. D. (William.)---A Summary of the present State of the British Settlements in North-America, 2 vols. in 8vo. Boston.

1755. A Description of the Plants growing naturally about Boston is in this Book.

1755. Justice, (John.)---The Scots Gardeners Director, in 8vo. Edin.

1756. Brown, M. D. (Patrick.)—The Civil and Natural History of Jamaica; of its natural productions, fossils, vegetables and animals, in fol. with copper-plates. 2l. 2s.

1756. ———, ———.—The Delights of Flower-Painting. 1s.

1756. Hill, M. D. (John.)—The British Herbal, or History of Plants and Trees Natives of Great-Britain, cultivated for use or raised for Beauty, 75 copper-plates, in fol.

1756. Lisle, Esq; (Edward.)—Observations on Husbandry: published from the original manuscript of the late Edward Lisle, Esq; of Crux-Easton, in Hampshire, with notes and observations from the best modern writers, by his son Thomas Lisle, D. D. in 4to. 18s.

An Edition, in 2 vols. 8vo. 10s.

1756. Osmer, (———.)—Dissertation on Horses. 1s. 6d.

1756. Pultney, M. D. (Richardus.)—Plantæ rariores circa Leicestriam nascentes, in 49 vol. Phil. Trans.

1756. Ruffel, M. D. (Alexander.)—Natural History of Aleppo, in 4to. 18s.

1756. Sheldrake, M. D. (———.)—Herbal of Medicinal Plants, on 118 folio copper-plates. 4l. 4s.

1756. ——— On Heat and Cold of Hot-houses, 8vo. 1s.

1756. ———, ———.—Treatise on Welch Farming. 1s.

1756.

1756. White, A. M. (Stephen.)—Collateral Bee - Boxes, a Treatise on Bees, by S. W. Rector of Holton in Suffolk.
1757. Adanson, (Michael.) —Natural History of Senegal, and an Account of a Voyage there, in 8vo. translated from the French, 5s.
1757. ———, ———.—Considerations on the present Dearness of Corn, 6d.
1757. Hill, M. D. (John.)—Eden : or a Compleat Body of Gardening, with 60 Copper-plates, in fol. 1l. 1s.
1757. ——— Compleate Body of Husbandry, with Copper-plates in fol. 1l. 11s. 6d.
1757. ——— The Sleep of Plants, and cause of motion in the Sensitive Plant explained, in a Letter to Linnaeus, 1s.
1757. Home, M. D. (Francis.)—The Principles of Agriculture and Vegetation, in 8vo. 4s. 2d Edition in 1759.
1757. Maxwell, Esq; of Arkland, (R——.)—The Practical Husbandman, in 8vo. 6s.
1757. Shaw, D. D. (Thomas.)—Travels and Observations relating to several parts of Barbary and the Levant, in 4to. 2d. edition, much encreased.
1757. Smith, L. L. B. (John.)—Chronicon Rusticum et Commerciale, or Memoirs of Wool, 2d. Edition in 2 vol. in 4to. 1l. 11s. 6d.
1757. Thompson, of Newcastle, (John.)—The Distinguishing Properties of a fine Auricula, 6d.
1757. Wood, (John.)—New compendious Treatise of Farming, in 8vo.
1758. Borlase, V. D. M. (William.)—The Natural History of Cornwall; the Air, Climate, Waters, Stones, Semi-metals, Metals, Tin, Iron, Copper, Gold, Vege-

1758. tables, Rare Birds, Fishes and Shells found in Cornwall. in fol. Oxford.
1758. Doffie, Esq; (Robert.)—The Elaboratory laid open, in 8vo.
1758. ———, ———.—The Dutch Florist, in 12mo. 1s. 6d. Newcastle.
1758. Edwards, Esq; (George.)—Gleanings of Natural History, in 7 vol. 4to. This work was several years before compleated.
1758. Hanbury, (William.)—An Essay on Planting, and a Scheme to make it conducive to the glory of God, and the advantage of Society, by the Rev. W. H. Rector of Church-Langton, Leicestershire, 1s.
1758. Hill, M. D. (John.)—Outlines of a System of Vegetable Generation, in 8vo. 2s. 6d.
1758. ————An Account of a Stone in the possession of the Earl of Stafford, which, on being watered, produces excellent Mushrooms; with the history of the Violet Stone of Germany, with figures, 1s. 6d.
1758. ————Method of producing Double Flowers from single, by a regular course of culture, in 8vo. 2s. 6d.
1758. ————The Gardeners New Calendar, in 8vo.
1758. ————New Method of propagating Shrubs, from Leaves, under the Name of Thomas Barnes, in 8vo.
1758. ————History of Insects: translated from Swammerdam by Thomas Floyd, and improved by Notes from Reaumur, by Dr. Hill, in folio.
1758. ————An Idea of a Botanical Garden in England, 1s.
1738. Jackson, (H———.)—An Essay on Bread, shewing the impossibility of mixing Lime, &c. without discovery;

1758. ———— covery ; with methods for detecting Adulterations in Wines, Cyder, by H. J. Chymist, 1s.
1758. ———— A full Answer to the Essay on Bread, 6d.
1758. ———— A Final Warning to the Public to avoid the detected Poison ; being a Reply to the Essay on Bread.
1758. Miller, Esq; F. R. S. (Philip.)—The method of Cultivation of Madder in Zealand (where the best is produced,) and in England, in 4to. 2s. 6d.
1758. Pullein, V. D. M. (Samuel.)—The Culture of Silk for the use of the American Colonies, and the Culture of Mulberry-trees with copper-plates, in 8vo. 5s.
1758. Wallis, (Thomas.)—The Farrier's and Horseman's Dictionary, containing the Art of Farriery &c. in 12mo. 3s. 6d.
1758. ————, ————.—Institution of the General Company for the Culture of the Vineyards of Alto Douro. 1s.
1759. Combrune, (———— .)—Essay on Brewing, in 8vo.
1759. Brown, (R ———— .)—Complete Farmer : by R. B. of Hill-farm in Somersetshire, in 2 vol. in 12mo. 6s.
1759. Dossie, Esq; (Robert.)—Institutes of Experimental Chymistry, 2 vol. in 8vo.
1759. Hill, M. D. (John.)—The Vegetable System, vol. 1. in fol. 1l. 11s. 6d. (for the full Title, vide 1772.)
1759. ———— The Practice of Gardening explained to all capacities, under the Title of Thomas Perfect, in 8vo.
1759. ———— The Usefulness of the Knowledge of Plants, with the easy means of information, in 8vo. 6d.
1759. ———— Exotic Botany, illustrated with 35 figures of curious Plants. in fol. 2l. 12s. 6d.

1759. ——— The Virtues of Honey in preventing and curing many diseases, 1s. 6d.
1759. Martin, (Benjamin.)—Natural History of England, 2 vol. in 8vo 12s.
1759. Mills, Esq; F. R. S. (John.)—Practical Treatise on Husbandry, translated from the French of M. Du Hamel du Monceau, with additions, and copper-plates of new Instruments in 4to. 16s.
1759. Morris, (———.)—Plan for Arranging and Ballancing the Accounts of landed Estates, 5s.
1759. North, (—— .)—Treatise on Grasses and on the sound-growing Norfolk Willow, 1s.
1759. ———Gardeners Catalogue of Hardy Trees, Shrubs, Flowers, Seeds, &c. in 8vo. 6d.
1759. Osmer, (—— .)—Treatise on the Diseases and Lameness of Horses, in 8vo. 5s. 6d.
1759. Stillingfleet, (Benjamin.)—Miscellaneous Tracts, relating to Natural History, Husbandry and Physic, translated from the *Amœnitates Academicæ* of Linnaeus, in 8vo. 3s.
- A second Edition in 1762, greatly augmented.
1760. Ball, (—— .)—Pharmacopœa Domestica, in 8vo.
1760. ———, ———.—The Honour &c. of Agriculture, 1s. 6d.
1760. ———, ———.—An Essay on Agriculture in 8vo.
1760. ———, ———.—The Farmer's Guide, in 8vo.
1760. The London Gardener, 1s.
1760. Hill, M. D. (John.)—Flora Britannica, in 8vo.
1760. Hitt, (Thomas,)—Treatise on Husbandry, on the Improvement of dry and barren Lands, in 8vo. 3s.

1760. Jeffries, (J —.)—The Natural and Civil History of the French Dominions in America, of the climate, soil, minerals, animals, vegetables, manufactures, trade, commerce and languages, &c. in fol.
1760. Lee, (James.)—An Introduction to Botany, containing an explanation of the theory of that science and an interpretation of its technical terms; extracted from the works of Linnæus, with 12 copper-plates, two explanatory tables, and an appendix, containing upwards of two thousand English names of Plants, referred to their titles in the Linnæan System, in 8vo. 5s. Second Edition in 1765.
1760. Miller, Esq; F. R. S. (Philip.)—A set of Figures of the most beautiful, useful and common Plants, on 300 Copper-plates, adapted to the Gardeners Dictionary, in 2 vol. fol. plain 6l. 6s. coloured 12l. 12s. This work was begun in 1755, and finished this year.
1760. ———, ———.—Obstacles to the Improvement of Land in Scotland, in 8vo. Aberdeen.
1760. Pullein, V. D. M. (Samuel.)—Observations towards a method of preserving the seeds of plants in a state of vegetation, during long Voyages, in 8vo.
1760. Rocque, (Bartholomew.)—Practical Treatise on Cultivating Lucern, in 8vo.
1760. ———, ———.—The Art of making Wines, from Fruits, Flowers &c.
1760. Haddington, (Lord.)—Treatise on Forest-trees, in 8vo. sewed 2s.
1761. Hill, M. D. (John.)—The Vegetable System, vol. 2d. 2l. 2s. vol. 3d. in fol. 1l. 11s. 6d.

1761. Mordant, (John.)—The Complete Steward; or the Duty of a Steward to his Lord, 2 vols. in 8vo.
1761. Osmer, (———).—Treatise on the Diseases of Horses with methods of Shoeing and new observations on the Art, in 8vo. 6s.
1761. Pembroke, (Lord.)—Method of Breaking Horses, in 8vo. 3s.
1762. Clayton, (Joannes.)—Flora Virginica, exhibens Plantas quas in Virginia I. Clayton collegit. Methodo sexuali disposuit J. F. Gronovius. Editio secunda in 4to. Leid.
1762. ———, ———.—A Discourse on the Cultivation of Waste and Barren Lands, translated from the *Memoire sur les Defrichemens* of the Marquis of Turbilly, in 12mo. 2s. 6d.
1762. Hill, M. D. (John.)—The Vegetable System, vol. 4. in fol. each vol. except the 2d. 1l. 11s. 6d.
1762. ———, ———.—The Natural History of a Horse. Translated from the French of Buffon, in 8vo. 6s.
1762. Hudson, R. S. S. (Gulielmus.)—Flora Anglica, exhibens Plantas per Regnum Angliæ spontè crescentes, distributas secundum systema sexuale: cum differentiis Specierum, Synonymis Autorum, Nominibus Incolarum, Solo Locorum, Tempore Florendi, Officinalibus Pharmacopæorum, in 8vo. 7s.
1762. Mills, Esq; F. R. S. (John.)—A New and Complete System of Practical Husbandry: containing all that Experience has proved to be most useful in Farming, either in the old or new method; with a comparative view of both; and whatever is beneficial to the Husbandman, or conducive to the ornament and improve.

1762. improvement of the Country Gentleman's Estate,
in 5 vols. 8vo. 1l. 10s.

This work was published in 6d. weekly numbers,
and completed in 1763. Translated into German
both at Leipzig and Vienna, in 1764.

1762. Stillingfleet, (Benjamin.)—Miscellaneous Tracts re-
lating to Natural History, Husbandry and Physic.

The second Edition, with additional notes through-
out, particularly on English Grasses, illustrated by
copper-plates: with the Calendar of Flora, by The-
ophrastus at Athens.

By Mr. Berger, at Upsal, in Sweden; and by Mr
Stillingfleet in Norfolk, in 8vo. 6s.

1763. ———, ———.—An Essay on the Theory of Agri-
culture, intended as an introduction to a rational
system of the art, in 12mo. 3s.

1763. ———, ———.—A short description of South-Ca-
rolina, with an account of the Air, Weather and
Diseases in Charles-town, in 8vo.

1763. Chambers, (———.)—Plans and Elevations of the
Gardens and Buildings at Kew, in Surry, belong-
ing to the Princess of Wales, in fol. half bound,
2l. 12s. 6d.

1763. ———, ———.—A Proposal for selling some of the
Forest Lands and Chaces, 1s.

1763. Hill, M. D. (John.)—Vegetable System, in fol. vol. 5.

1763. Martyn, (Thomas.)—Plantæ Cantabrigienses, or a
Catalogue of the Plants which grow wild in the
County of Cambridge, in 8vo.

1763. Lyons, (Israel.)—Fasciculus Plantarum circa Canta-
brigiam nascentium, quæ post Rajum observatæ
fuerunt, in 8vo.

1763.

1763. *Museum Rusticum*.—*Museum Rusticum et Commerciale*.

This work was published in 12d. monthly Numbers, and was compleated in 6 vols. 8vo. in 1766, 2l. 2s.

1763. ———, ———.—Propositions for improving the Manufactures, Agriculture and Commerce of Great-Britain, in 8vo.

1763. Reeve, (———).—Art of Farriery, with cuts, 8vo. 5s.

1763. Roberts, (William).—Account of the first Discovery and Natural History of East-Florida, in 8vo.

1763. Stukely, (William).—*Palæologia Sacra*, in 4to.

1763. Wheeler, (James).—The Botanist's and Gardener's Dictionary and Calendar, on the Linnæan System, by J. W. Nurseryman at Gloucester, in 8vo. 6s.

1764. Berkenhout, M. D. (John).—*Clavis Anglica Linguae Botanicae*; or a Botanical Lexicon; in which the terms of Botany, particularly those occurring in the works of Linnæus, and other modern writers are applied, derived, explained, contrasted and exemplified, in 12mo. 4s. Becket.

1764. Billings, (Robert).—Treatise on Carrots, shewing their great use in feeding and fattening of cattle, 8vo. 6d.

1764. Bourn, (———).—Treatise on Wheel-Carriages, 1s. 6d.

1764. Dickson, A. M. (Adam).—Small Farms destructive to the Country in its present situation, in 8vo. 6d. by A. D. Minister of Dunse in Scotland. Vide 1769.

1764. Elliot, (———).—Essays on Field-Husbandry, in New-England.

1764. ———, (———).—Complete Farmer, or Dictionary of Husbandry, in 4to. 1l. 4s. 2d Edition in 1768.

1764.

1764. Foreign Essays.—Foreign Essays on Agriculture and Arts, containing the Discoveries made in the several provinces of France, Germany, Flanders, Sweden and Switzerland, in 8vo. 6s.
1764. Grainger, (James.)—The Sugar Cane, a Poem, in 4to.
1764. Harte, (Walter.)—Essays on Husbandry, and a Treatise on Lucern, by W. H. Canon of Windsor, with copper-plates, in 8vo. 6s. A 2d Edition in 1770.
1764. ———, ———.—A Treatise on Hemp: translated from the French of M. Marcandier. *Memoire sur une nouvelle maniere de preparer le Chanvre*, Paris in 12mo. 1757, et *Traité du Chanvre*. Paris in 12mo. 1758.
1764. Hill, M. D. (John.)—Vegetable System, fol. vol. 6 and 7.
1764. Macaulay, (Kenneth.)—History of St. Kilda, in 8vo.
1764. ———, ———.—Complete *Malster*, with a dissertation on Brewing in defence of long-grown Malt.
1764. Miller, Esq; F. R. S. (Philip.)—Elements of Agriculture, translated from the French of Du Hamel, in 2 vols. 8vo. 10s.
1764. Museum Rusticum.—Museum Rusticum et Commerciale, vol. 2d et 3d. 7s. each.
1764. Randal, (John)—Semi-Virgilian Husbandry, 8vo. 6s.
 ——— New Construction of Ploughs: a new-invented Universal Seed-furrow Plough: a Potatoe Drill-Plough, &c. in 4to.
1764. Shenstone, Esq; (William.)—Unconnected Thoughts on Gardening, contained in 23 pages.

1764. A Description of the Leaseowes, his feat; with a plan of it, by R. Doddsley.
The above are in Shenstone's Works, in 2 vols. 8vo. 12s.
1764. Van Campen, (Nicholas.)—The Dutch Florist, or true Method of managing all sorts of Flowers with Bulbous Roots, in 4to.
1765. ———, ———.—Agriculture and Commerce, a Dialogue, 1s.
1765. Dickson, (Adam.)—A Treatise on Agriculture, in 8vo. 6s. vol. 2d in 1769.
1765. Baker, (John Wynn.)---Experiments in Agriculture, made under the Direction of the Dublin Society, 8vo.
1765. Bartlet, (J — .)---Pharmacopeia Hippiatrica, 8vo. 4s.
1765. Ferdyce, (George.)---Elements of Agriculture, in 8vo. Edingb.
1765. Hill, M. D. (John.)---Vegetable System, in fol. vol. 8. 9. and 10.
1765. Lee, (James.)---Introduction to Botany, 2d Edition, with a Glossary of the Technical terms, in 8vo. 5s.
1765. Millar, Esq; F. R. S. (Philip.)---Gardeners Calendar, 14th Edition, with a Dissertation on Botany, 8vo. 5s.
1765. Museum Rusticum.---Museum Rusticum et Commerciale. vol 4th. and 5th. 7s. each.
1765. Onely, (———.)—Of the Price of Wheat, 1s.
1764. ———, ———.—A Treatise on Domestic Pigeons, in 8vo. 2s. 6d.
1765. ———, ———.—Considerations on the High Price of Provisions, 1s.

1765. ———, ———.—An Enquiry into the prices of *Wheat*, Malt, and occasionally of other Provisions, of Land and Cattle, from the year 1000, to 1765, in fol. in boards, 7s. 6d.

1765. ———, ———.—Authentic Accounts of the History and Price of *Wheat*, Bread, Malt, &c. from the coming in of William the Conqueror, to Michaelmas 1745, and also a true Relation or Collection of the most remarkable Dearth and Famines, which have happened within the said time. Likewise the rising and falling of the Price of *Wheat*, and other Grain from time to time, with the several occasions thereby briefly set down, 4to. 18d. Davis.

This Tract was originally composed in 1638, by John Penkethman, under the Title of Artachtos, or the new Booke of the Affize of Bread, and now reprinted.

1765. Onely. (Rev. Richard.) —An Account of the Care taken in most civilized Nations for the Relief of the *Poor*, more particularly in times of Scarcity and Distress, 4to. 1s. Davis.

1765. ———, ———.—A View of the Advantages of Inland *Navigations*: with a Plan of a Navigable Canal intended for a Communication between the Ports of Liverpool and Hull, 8vo. 1s. 6d. Becket.

1766. ———, ———.—An Impartial View of English *Agriculture* from the permitting the Exportation of Corn in 1663, to the present times, in 8vo. 1s. Kearsly.

1766. Bradley, F. R. S. (Richard.) —General Treatise of Husbandry and Gardening, reduced from 2 vol. to 1. with Extracts by way of Notes, from Tull, Linnæus, Mills, Miller, &c. in 8vo. 6s.

1766. ———, ———.—Three Tracts on the *Corn-trade*, *Corn-Laws*, &c. to which is added a Supplement, containing several Papers and Calculations which tend to explain and confirm what is advanced in the foregoing tracts, 8vo. 3s. Brotherton.
1766. Giles, (——— .) —Method of Raising Pines and Melons, in 8vo. 1s.
1766. ———, ———.—Present State of *Great Britain* and *North-America*, in regard to Agriculture, in 8vo.
1766. Hanbury, (William.)—History of the Foundation at Church Langton, in 8vo.
1766. Harrison, (——— .)—Of Making the Fen-Banks almost impregnable, in 8vo. 1s. 6d.
1766. Homer, (——— .)—The Nature and Method of ascertaining the Specific Shares of Proprietors, upon the Inclosure of Common-Fields, 1s. 6d. Payne.
1766. Hope, M. D. (John.)—A Description of the Rheum palmatum, or True Rhubarb. Philos. Trans. vol. 55.
1766. Lightoler, (J——.)—The Gentleman and Farmer's Architecture, being plans for Parsonage and Farm-houses, with Pineries, Green-houses, &c. on 25 plates, in fol. sewed 6s.
1766. Locke, (John.)—Observations upon the Growth and Culture of Vines and Olives; the Production of Silk, the Preservation of Fruits. Written at the Request of the Earl of Shaftesbury, to whom it is inscribed, by Mr. John Locke: now first printed from the original Manuscript in the Possession of the present Earl of Shaftesbury, 1s. 6d. Sandby.

1766. Mawe, (Thomas.)—Every Man his own Gardener, being a new Gardener's Calendar, with complete and useful lists of Forest-trees, Flowering-shrubs, Fruit-trees, Evergreens, annual, biennial, and perennial Flowers: Hot-house, Green-house, and Kitchen-garden-plants, with the varieties of each sort cultivated in the English Gardens, in 12mo. 4s. Griffin.

1766. Mills, Esq; F. R. S. (John)—Essay on the Management of Bees, in 8vo. 3s. Johnson.

Translated into German at Leipzig, in 8vo.

1766. Museum Rusticum—Museum Rusticum et Commerciale, vol. the 6th. 7s. which compleats the work in 6 vol. 8vo. 2l. 2s.

It has been translated into German.

1766. ———, ———.—Observations on some papers in the Museum Rusticum, With new theoretical and practical pieces on Husbandry, in 8vo. 1s. Sandby.

1766. ———, ———.—The young Lady's Introduction to *Natural History*, &c. 12mo. 2s. 6d. Bladon.

1766. ———, ———.—The History of Inland *Navigations*. Particularly those of the Duke of Bridgewater, in 8vo. 2s. 6d. Lowndes.

1766. Pennant, (——— .)—British Zoology, with 132 Copper-plates of the most curious Quadrupeds and Birds, elegantly coloured, in fol. half bound, 11l. 11s.

1766. Stubbs, (——— .)—Anatomy of a Horse, 15 Copper-plates on Royal-Paper. in fol. 5l. 5s.

1766. ———, ———.—An Enquiry into the Cause of the great Scarcity of *Timber*, throughout the Dominions belonging to his Majesty, in 8vo. 1s. 6d. Noble.

1766. Templeman, (Peter.)—Practical Observations on the Culture of Lucern, Burnet, Timothy-grafs, Fowls-meadow-grafs, &c.
1766. Whitworth, Esq; (Richard.)—The Advantages of Inland Navigations, or some Observations to shew that one may be effected between the three Great Ports of Bristol, Liverpool and Hull, 8vo. 2s. 6d. Baldwin.
- 1767 ———, ———.—Examination of an Impartial View of English *Agriculture*, 8vo. 1s. Wilkie.
1767. ———, ———.—Ananas, a Treatise on the Pine-Apple, 2s
1767. Catesby, F. R. S. (Mark.)—Hortus Europæ Americanus, or a Collection of 85 Curious Trees and Shrubs the produce of North-America, adapted to Great Britain, Ireland, and most parts of Europe; Extracted from Catesby's Carolina. 63 figures on 17 Copper-plates, Imp. Paper, 4to. 2l. 2s.
1767. ———, ———.—Select Scotch *Essays*, from the Museum Rusticum, tried in Scotland, in 8vo. 6s.
1767. ———, ———.—The Practical Farmer, or Herefordshire Husbandman, in 12mo. 3s.
1767. ———, ———.—A Plan of an Experimental *Farm*, addressed to Lord Clive, in 8vo. 6s.
1767. ———, ———.—Uniting and Monopolizing *Farms*, proved disadvantageous to the Land-Owners, 1s. 6d. Smith.
1767. ———, ———.—Observations on the *Farmers* three Letters, to a Member of Parliament, 8vo. 6d. Almon.
1767. Doffe, Esq; (Robert.)—Observations on the Pot-Ash brought from America; with the Process for making Pot-Ash and Barilla, in North-America, in 8vo. 1767.

1767. ———, ————The Complete *Grazier*, or Gentleman and Farmer's Directory, in 8vo.

1767. Fitz-Herbert, (———.)—Book of Husbandry, and Booke of Surveying, with a Treatise of Xenophon, reprinted, (vide 1534) in 8vo.

1767. ———, ———.—The Rise and Progress of the present Taste of planting Parks and *Gardens*, in 8vo. 1s. 6d.

1767. Justice, (John.)—The British Gardeners Director, in 8vo. Edinb. 6s.

1767. ———, ———.—A Discourse concerning the *Irritability* of some Flowers. A New Discovery, translated from the Italian, 8vo. 1s. Doddsley.

1767. Jones, (Henry.)—Kew Garden, a Poem in 2 Cantos, by H. J. Author of the Earl of Essex, 4to. 2s. 6d. Doddsley.

1767. ———, ———.—Hibernia Curiosa, giving a general View of the Manners of Ireland; with observations on the State of Trade and Agriculture, its natural Curiosities, &c. collected in a Tour through Ireland, in 1764, in 8vo. 3s. Flexney.

1767. Hill, M. D. (John.)—Vegetable System, fol. vol. 11 and 12.

1767. Homer, (———.)—Treatise on Preserving the Public Roads, in 8vo. 1s.

1767. Neville, A. M. (Thomas.)—The Georgics of Virgil. Translated into Verse. 2s. Cadell.

1767. ———, ———. — Important Hints, towards an Amendment of the Royal-Dockyards. Being Considerations on a late Pamphlet on the *Oak-Timber*. By a Man of Kent, 8vo, 1s.
1767. Petiver, (———.) — Opera Historiam Naturalem spectantia, 2 vol. in fol. cum plurimis figuris, 6l. 6s.
1767. ———, ———. Letter from a Farmer on the Prices of *Provisions*, 1s.
1767. ———, ———. — Thoughts on the present high Price of *Provisions*, 1s.
1767. ———, ———. — An Enquiry into the Causes of the present high Prices of *Provisions*, in 8vo. 3s. Fletcher.
1767. Rutten, (John.) — Modern Eden, or the Gardeners Universal Guide, in 8vo.
1767. Stewart, Bart. (Sir James.) — An Enquiry into the Principles of Political Oeconomy, being an Essay on the Science of Domestic Policy in free Nations, in 2 vol. 4to. in boards, 2l. 2s. Millar and Cadell.
1767. Wall, (———.) — Of Breeding Horses, 2s. 6d.
1767. Whitworth, (———.) — Scheme for the Improvement of the Broad Wheels, 6d. Baldwin.
1767. Young, Esq; (Arthur.) — The Farmer's Letters to the People of England; containing the Sentiments of a practical Husbandman, on various Subjects, of the utmost Importance; to which are added *Sylvæ*, or Occasional Tracts on Husbandry and Rural Oeconomics, in 8vo. 6s. Nicoll.
Second Edition in 1769.

1767. ————A Six Weeks Tour, through the South Counties of England and Wales, in 8vo. 5s.

A second edition in 1769, 6s.

1768. ————A Philosophical Survey of the Animal Creation; an Essay, wherein the general Devastation and Carnage that reign among the different Classes of Animals, are considered in a new point of View, 8vo. 3s. Johnson.

1768. Cockings, (———.)—Arts, Manufactures and Commerce, in 8vo. 1s. 6d.

1768. ————, ————.—Considerations on the Effects which the Bounties granted on Exported Corn, Malt and Flour, have on the Manufactures of the Kingdom, and the true Interests of the State, 8vo. 2s. Cadell.

1768. ————, ————.—The Farmers Address to their Representatives, recommended to the Perusal of every Corn-Farmer, in Great Britain, 8vo. 1s.

1768. Doffie, Esq; (Robert.)—The Memoirs of Agriculture, in 8vo. vol. 1st. 6s. 2d. vol. in 1771, Nourse.

1768. ————, ————.—The Fruit-Gardener, containing the method of raising Stocks for multiplying Fruit-trees, with Directions for laying out and managing Fruit-Gardens, in 8vo.

1768. ————, ————.—An Essay on Design in Gardening, in 8vo. 1s. 6d. White.

1768. Hill. M. D. (John.)—Vegetable System, fol. vol. 13, and 14.

1768. ————.—An Enquiry into the Reasons for and against Inclosing the Open Fields, 8vo. 1s. Johnson.

1768. ———, ———.—Reflections on Inland *Navigations*, and a method proposed for the intended Navigation betwixt the Forth and the Clyde, 8vo. 1s. Cadell.
1768. ———, ———.—An Answer to a Pamphlet, intituled “Thoughts on the Causes and Consequences of the present high Price of *Provisions*,” 8vo. 6d. Bingley.
1768. ———, ———.—Popular Considerations on the Dearness of *Provisions* in General, and particularly of Bread-Corn, in 8vo. 6d. Rivington.
1768. ———, ———.—Serious Reflections on the High Price of *Provisions*, 8vo. 1s. Durham.
1768. Miller, Esq; F. R. S. (Philip.)—Gardeners Dictionary, in fol. 8th and last Edition. The Plants arranged according to the Linnæan System. 3l. 3s.
1768. Pennant, Esq; (———.)—British Zoology, 4 vol. in 8vo. with 139 Copper.plates, in boards, 1l. 16s. Large Paper, 4 vol. in boards, 2l. 9s. Vol. 3d. in 1769. Vol. the 4th in 1770. White.
1768. ———, ———.—De Re Rustica, or the Repository of Select Papers on Agriculture, Arts and Sciences, in 8vo. A Periodical Work in numbers, similar to, and which succeeded the Museum Rusticam, completed in 10 numbers, vol. 1st. in 1769, vol. 2d. in 1770.
1769. Wildman, (Thomas.)—A Treatise on the Management of Bees; wherein, is contained their Natural History, and likewise of Wasps and Hornets, with Copper.plates, 4to. 10s. 6d. Cadell.
1769. ———, ———.—Letters on the French Nation, containing (inter alia) the comparative *Agriculture* between England and France, in 8vo. 6s.

1769. Bancroft, (Edward.)—Natural History of Guyana, in South-America, in 8vo. Translated into German, at Leipfig, in 1769.

1769. ———, ———.—The American Traveller, or Observations on the present state, culture, and commerce of the *British Colonies*, in 4to.

1769. Berkenhout, M. D. (John.)—Outlines of the Natural History of Great Britain and Ireland, in 8vo. vol. 1st. the Animals, vol. 2d. the Vegetables in 1770. vol. 3d. the Minerals in 1771.

1769. ———, ———.—A Treatise upon *Coal-Mines*, 8vo. 18d. Newberry.

1769. Dicks, (John.)—New Gardeners Dictionary, or the whole Art of Gardening, fully and accurately displayed; containing the most approved methods of cultivating all kinds of Trees, Plants and Flowers, in 60 numbers, in small folio. 30s. Blyth.

1769. Dickson, A. M. (Adam.)—A Treatise of Agriculture, in 8vo. vol. 2d. 7s.

1769. Duncombe, (——— .)—A Treatise upon the Dendrometer, a new-invented Instrument for the more certain and ready Measurement of standing Timber, by Inspection only, 8vo. 3s. Newberry.

1769. Garton, (James.)—The Practical Gardener and Gentleman's Directory, for every month in the year, in 8vo. 3s. Dilly.

1769. Hales, D. D. F. R. S. (Stephen.) ——— Statical Essays, containing Vegetable Statics, or an account of some Statical Experiments on the sap in Vegetation, being an Essay towards a Natural History of
1769.

1769. Vegetation, of use to the curious in the Culture and Improvement of Gardening, 4th Edition, in 2 vol. in 8vo. with 19 Copper-plates, 12s.

1769. Hanbury, A. M. (Rev. William.)—Complete Body of Planting and Gardening, containing the Natural History, Culture and Management of Deciduous and Evergreen Forest-trees, &c. the whole forming a Complete History of Timber-trees, whether raised in Forests, Plantations, or Nurseries; as well as a General Syttem of the Present Practice of the Flower, Fruit, and Kitchen-Gardens. To be compleated in about 140, 6d. weekly numbers, from Dec. 1769, in 2 vol. folio.

1769. Hill, M. D. (John.)—Vegetable System, fol. vol. 15.

——— Hortus Kewensis, 2d. edition, with an addition of 20 new Plants, on Copper-plates, in 8vo. 7s. 6d.

——— Family Practice of Physick, in 8vo.

1769. ———, ———.—A Guide to the Perfect Knowledge of *Horses*, translated from the French of M. De Saunier, in 8vo. 5s. Nicoll.

1769. Hunter, M. D. (A ———.)—Georgical Essays, in which the Food of Plants is particularly considered, several new Composts recommended, and other important articles of Husbandry explained, upon the Principles of Vegetation, vol. 1. in 12mo. 3s, at Durham.

1769. Pennant, Esq; (———.)—British Zoology, vol. 3d. containing Reptiles and Fishes, with 17 Copper-plates, in boards, 6s. Large Paper, 9s. 6d.

1769. Pluknetius, (Leonardus.)—Opera Botanica, 4 tomi, in 4to. vide 1691. 3l. 10s.

1769. Wallis, (John.)—The Natural History and Antiquities of Northumberland, in 2 vol. 4to.

1769. Young, Esq; (Arthur.)—The Farmer's Letters, 2d. edition, 6s. in 8vo.

The Six Weeks Tour, 2d. edition, 6s.

1770. Alston, M. D. (Charles.)—Lectures on the Materia Medica: containing the Natural History of Drugs, their Virtues and Doses, in 2 vols. 4to. 1l. 11s. 6d. Edinb. Published from the Manuscript of the late Dr. Charles Alston, Professor of Botany, and the Materia Medica, in the University of Edingburgh, by John Hope, M. D. Professor of Medicine and Botany in that University.

1770. Berkenhout, M. D. (John.)—Outlines of the Natural History of Great Britain and Ireland, vol. the 2d. containing a systematic arrangement, and concise description of all the Vegetables, which have hitherto been discovered in these Kingdoms, in 8vo. in boards, 5s. Elmsley.

1770. Dove, (John.)—Strictures on Agriculture, wherein a Discovery of the Physical Cause of Vegetation, of the Food of Plants, and the Rudiments of Tillage, are attempted, 8vo. 1s. Bladon.

1770. Comber, (Rev. Thomas.)—Free and Candid Correspondence on the Farmer's Letters to the People of England. in 8vo.

1770. ———, ———.—Considerations on the Exportation of Corn, &c. in 8vo. 18d. White.

1770. Drury, (D ——.)—Illustrations of Natural History, exhibiting 240 figures of Exotic Insects according to their different Genera, very few of which have hi-

1770. therto been figured by any author. Engraved and coloured from Nature, on 50 Copper-plates, with remarks and reflections on the nature and properties of many of them, to which is added a French translation, in 4to. half bound, 2l. 11s. 6d White.
1770. Edwards, Esq; (George.)—Essays on Natural History and other miscellaneous subjects, in 8vo.
1770. Ellis, F. R. S. (John.)—Directions for bringing Seeds and Plants from the East-Indies.—A Description of the *Dionæa Muscipula*, or Venus's Fly-trap, a new Sensitive Plant, with 2 copper-plates, in 4to. 2s.
1770. Hanbury, A. M. (Rev. William.)—Complete Body of Planting and Gardening, in fol. about 50 numbers published this year.
1770. Hill, M. D. (John.)—The Vegetable System, fol. vol. 16.
1770. ———Herbarium Britannicum, with copper-plates, in 2 vol. 8vo. 18s.
1770. ———The Construction of Timber from its early growth, explained by the Microscope with 34 Copper-plates in fol. in sheets, 1l. 5s.
1770. Hunter, M. D. (A ———.)—Georgical Essays, vol. 2d. 12mo. 3s. at Durham.
1770. Mawes, (———.)—Gardeners Dictionary, in 4to. Griffin.
1770. Millar, (———.)—System of Linnæus explained, No. 1. To be compleated in 15 Numbers, one Guinea each. Each Number contains 4 plants coloured, and 4 plain.
1770. Mills, Esq; F. R. S. (John.)—An Essay on the Weather, with Remarks on the Shepherd of Banbury's

1770. Rules for judging of its changes, in 8vo. 2s. Hooper, 2d. edition in 1773.

1770. Milne, (Colin.)—A Botanical Dictionary: or Elements of Systematic and Philosophical Botany, in 8vo, 5s. Griffin.

1770. Mills, Esq; F. R. S. (John.)—The Natural and Chemical Elements of Agriculture. Translated from the Latin of Count Gustavus Adolphus Gyllenborg, in 12mo. 3s. Bell.

1770. Newton, M. D. (James.)—An Herbal all on Copper-plates, in 8vo. 12s.

1770. Enchiridion Universale Plantarum, or Universal and compleat History of Plants, with their Icons in a manual, 8vo. 4s.

These two works were first published about 1682.

1770 Pennington, (W —.)—Reflections on the various Advantages resulting from the Draining, Inclosing and Allotting of large Commons and Common Fields, in 8vo. 1s. 6d. White.

1770. Peters, (Matthew.)—The Rational Farmer, or a Treatise on Agriculture and Tillage, by M. P. Member of the Dublin Society, in 8vo. 2s. 6d. Flexney.

1770. ———, ———.—De Re Rustica; or the Repository, in 8vo. vol. 2d. the 2. vol. 12s.

1770. Weston, Esq; (Richard.)—The Universal Botanist and Nurseryman; containing Descriptions of the Species and Varieties of all the Trees, Shrubs, Herbs, Flowers and Fruits, Natives and Exotics, at present cultivated in the European Nurseries, Green-houses and Stoves, or described by Modern Botanists; arranged according to the Linnæan System, with their Names in English. To which are added, a

1770.

1770. copious Botanical Glossary: several useful Catalogues and Indexes; illustrated with elegant Engravings. In 4 vol. 8vo. in boards, 1l. 1s. vol. 1st. in 1770. vol. 2d. in 1771. vol. 3d. 1772. vol. 4th. 1773. Bell.
1770. Wheatley, (——.)—Observations on Modern Gardening, illustrated by Descriptions, in 8vo. sewed. 3s. 6d. J. Payne.
1770. Wildman, (Thomas.)—A Treatise on the Management of Bees. 2d. Edition, with an appendix in 8vo. 4s.
1770. Wimpey, (——.)—Thoughts upon several interesting Subjects, viz. On the Exportation of, and Bounty upon Corn; on the high Price of Provisions; on Manufactures, Commerce, &c. 1s. Crowder.
1770. Young, Esq; (Arthur.)—Six Months Tour through the North-Counties of England, in 4 vol. 8vo. 1l. 4s.
1770. ———Expediency of allowing the Exportation of Corn, 8vo. 1s.
1770. ———Essay on Fattening Hogs, 1s.
1770. ———Essay on Coleseed, 1s.
1770. ———The Farmers Guide in Hiring and Stocking Farms, with plans of Farm-yards and Sections of the most necessary Buildings, in 2 vol. 8vo. 12s. Nicoll.
1770. ———Rural Oeconomy: or Essays on the Practical Parts of Husbandry. To which is added, the Rural Socrates: being Memoirs of a Country Philosopher, 8vo. 6s. Becket.

1770. The Rural Socrates is a description of the Oeconomical and moral conduct of a country Philosopher, translated from the German of M. Hirzel, president of the Royal Society at Zurich.

1770. ——— A Course of Experimental Agriculture: containing, an exact Register of all the Business transacted during five years, on near 300 Acres of various Soils; including a Variety of Experiments on the Cultivation of all sorts of Grain and Pulse, both in the old and new Methods, &c. in 2 vols. 4to. 2l. 10s. Doddsley.

1771. Berenger, Esq; Gentleman of the Horse to his Majesty, (Richard.)—The History of the Art of Horsemanship, 2 vols. in 4to. with Copper-plates, 2l. 2s. Davies.

1771. Berkenhout, M. D. (John.)—Outlines of the Natural History of Great-Britain and Ireland, 3d. vol. which completes the work, in 8vo. in boards, 2s. 6d. Elmsley.

1771. Breaks, (Thomas.)—A Complete System of Land-surveying; both in Theory and Practice, 8vo. 7s. 6d. in boards. Murray.

1771. Chambers, Knight, (Sir William.)—A Dissertation on Oriental Gardening, 4to. 94 pages, 5s. sewed. Davies.

1771. Clark, Farrier. (John.)—Observation on the Shoeing of Horses, with an anatomical Description of the bones in the Foot of a Horse, 8vo. 1s. 6d. Edinburgh. Robinson.

1771. Comber, Rector of Buckworth and Morbone, Hunts. (Thomas.)—Real Improvements in Agriculture, (on

1771.

1771. the principles of Ar. Young, Esq;) recommended to accompany improvements of Rents, 8vo. 83 pages, 1s. 6d. Nicoll.

1771. ———, ———.—A Sketch of a Plan for reducing the present high Price of *Corn* and other Provisions, and for securing plenty for the time to come, 8vo. 6d. Hingeston.

1771. Dossie, Esq; (Robert.)—The Memoirs of Agriculture, vol. 2d. 8vo. 6s.

1771. ———, (——— .)—Complete English Farmer, or a Practical Essay on Husbandry, &c. by a Practical Farmer, and a Friend of the late Mr. Jethro Tull, Author of the Horse-hoeing Husbandry, in 8vo. 6s. Newberry.

1771. ———, ———.—The Farmer's Kalendar, or a Monthly Directory, for all sorts of Country Business, containing, plain instructions for performing the work of various kinds of Farms, in every season of the year; respecting particularly the buying, feeding, and selling live stock: the whole culture of arable crops; the management of grasses; the economical conduct of the Farm, &c. by an experienced Farmer, in 8vo. 5s. Robinson and Roberts.

1771. Fordyce, M. D. (George.)—Elements of Agriculture and Vegetation, 8vo. 2s. 6d. Johnson.

1771. Forster, F. A. S. (John Reinhold.)—Travels through that part of North-America, formerly called Louisiana, translated from the French of Mr. Bossu, Captain in the French Marines, illustrated with notes, relative chiefly to Natural History, 2 vols. 8vo. in boards, 10s. 6d. Davies.

1771. ——— Catalogue of the Animals of North-America, 8vo. 1s. White.
1771. ——— Voyage to China and the East-Indies. with Toreen's Voyage to Suratt, and Eeckeberg's Account of the Chinese Husbandry. Translated from the Swedish of Olbeck, with a Faunula and Flora Sinenfis. 2 vols. in 8vo. with Copper-plates, 12s.
1771. ——— Travels into North-America: translated from the Swedish, of Peter Kalm, in 3 vols. 8vo. 18s. Lowndes.
1771. Hanbury, A. M. (Rev. William.)—Complete Body of Planting and Gardening, in 2 vol. fol. to about No. 90, published this year.
1771. Hill, M. D. (John.)—Vegetable System, in fol. vol. 17 and 18.
1771. Hunter, M. D. (A —,)—Georgical Effays, vol. 3. in 12mo. 3s. at Durham.
1771. Letsom, M. D. F. S. A. (John Coakely.)—The Naturalists and Travellers Companion, containing instructions for discovering and preserving Objects of Natural History, in 8vo. 2s. Pearch.
1771. Meader, (James.)—The Modern Gardener, or Universal Gardener, from the manuscripts of the late Mr. Hitt, in 8vo.
1771. Martyn, S. T. B. Coll. Sidn. Soc. Prof. Botan. Præl. Walk. et Horti Curator, (Thomas.)—Catalogus Horti Botanici Cantabrigienfis, 8vo. 3s. 6d. White.
1771. Milne, L. L. D. (Colin.)—Institutes of Botany: a Translation of the Genera Plantarum of Linnæus, Part 1st. 4to. 6s. Griffin.

1771. Pennant, Esq; (———)—Synopsis of Quadrupeds, with 33 Copper-plates, in boards, 8vo. 10s. 6d. White.
1771. Peters, (Matthew.)—Winter Riches, or a Miscellany of Rudiments, Directions and Observations necessary for the laborious Farmer, in 8vo.
1771. Weston, Esq; (Richard.)—Universal Botanist and Nurseryman, vol. 2d. in 8vo. 5s. 3d. in boards, Bell, Riley.
1771. Young, Esq; (Arthur.)—Proposals to the Legislature for numbering the people, containing some observations on the population of Great-Britain, and a sketch of the advantages that would accrue from an exact knowledge of its present state, 8vo. 1s.
1771. ——— The Farmer's Letters to the Landlords of Great Britain, vol. 2d. in 8vo. 6s.
1771. ——— The Farmer's Tour through the East of England, Being the Register of a Journey through various Counties of this Kingdom, to enquire into the State of Agriculture, in 4 vol. 8vo. 1l. 4s. Nicoll.
1772. Bailey, (William.)—Register to the Society for the Encouragement of Arts, Manufactures and Commerce, containing the descriptions with perspective views, geometrical Plans, &c. of the most useful machines and models, contained in the repositories of the Society, for the Encouragement of Arts, Manufactures and Commerce; with an account of the several discoveries and improvements which they have promoted in Agriculture, polite Arts, Manufactures, Mechanics and Chemistry; 4to. 400 pages, 55 plates, 2l. 12s. 6d.

1772. Forster, S. A. S. (Joannes Reinoldus)—Nova Species Insectorum, Centuria, 1ma. 2s. 6d. sewed, Davies.

1772.—An easy Method of assaying and classing Mineral Substances. Containing plain and easy instructions for any person to examine the products of his own land, or such as are obvious in excursions or travels in foreign countries, without having a complete chemical apparatus. Abstracted from the Memoirs of the royal Swedish Academy of Sciences, for the year 1771, 8vo. 44 pages and 24 of appendix, 1s. 6d. Dilly.

1772. Gentleman's Pocket-Farrier; shewing how to use your horse on a journey, and what Remedies are proper for common misfortunes, that may befall him on the road, 12mo, 1s. Bladon.

1772. Hanbury, A. M. (Rev. William.)—Complete Body of Planting and Gardening, in 2 vol. fol. about 4l. 4s. The work almost compleated. Dilly

1772. Hill, M. D. (John.)—The Vegetable System, or the Internal Structure and the Life of Plants, their Parts and Nourishment explained; their Classes, Orders, Genera and Species ascertained and described, in a method altogether new; comprehending an Artificial Index and a natural System, with figures of all the Plants. London, fol. Royal Paper, to April 1773. Twenty-one Volumes have appeared. There is also an Edition of about Six of the first Vol. in 4to. and another in 8vo. vol. 2. 2l. 2s. the others 1l. 11s. 6d. each, coloured 7l. 7s. each vol.

1772. Letsom, M. D. F. S. A. (John Coakeley.)—The Natural History of the Tea-tree, with observations on the medical qualities of Tea, and effects of Tea-drinking, 4to. 64 pages, 4s. Dilly.

1772. Hunter, M. D. (A —.)—Georgical Essays, vol. 4. in 12mo. 3s. at Durham.
1772. Marshall, Esq; (Joseph.)—Travels through Holland, Flanders, Germany, Denmark, Sweden, Lapland, Russia, the Ukraine and Poland in the year 1768, 1769 and 1770. In which is particularly minuted, the present state of those countries, respecting their Agriculture, Population, Manufactures, Commerce, the Arts and useful Undertakings, 3 vol. 8vo. 1104 pages, 18s. Almon.
1772. Mafon, M. A. (William.)—The English Garden, a Poem. Book the first, 4to. 30 pages, 2s. Horsefield. In March, Book the second, 4to. 2s.
1772. Mills, Esq; F. R. S. (John.)—Essays on Agriculture, &c. in 8vo. 4s. Hooper.
1772. Milne, (Colin.)—Institutes of Botany; part 2d. 4to. 6s. Griffin.
1772. Pattullo, Esq; (Henry.)—An Essay upon the Cultivation of the Lands, and Improvements of the Revenues of Bengal, 4to. 74 pages, 1s. 6d. Becket.
1772. ———, ———.—Essays on the Spirit of Legislation, in the Encouragement of Agriculture, Population, Manufactures and Commerce. Translated from the French, in 8vo. 488 pages, 6s. Nicoll.
1772. Reddington, (William.)—A Practical Treatise on Brewing, containing various Instructions and Precautions, &c. 2d. Edit. Richardson and Urquhart, 8vo. 2s. 6d.
1772. Saint Pierre, Esq; (Louis de.)—The Art of Planting and Cultivating the Vine; also of making, fining and preserving Wines, &c. according to the most approved methods in the most celebrated Wine Countries in France, in 12mo. 364 pages, Wilkie.

1772. Scale, Land-Surveyor, (Bernard.)—Tables for the easy valuing of Estates, from one shilling to Five pounds per Acre: Also the Parts of an Acre from three Roods to one Perch, 8vo. 5s. Cadell.
1772. Stone, James.)—The Complete Baker; or a Method of effectually raising a Bushel of Flour with a Teaspoonful of Barm, 8vo. 1s. Crowder.
1772. Weston, Esq; (Richard.)—The Universal Botanist and Nurseryman, vol. 3d. in 8vo. 5s. 3d. in Boards, Bell and Riley. The 4th vol. is in the Press, and will soon be published.
1772. White, (William.)—A Complete Guide to the Mystery and Management of Bees, in 8vo. 2s. 6d. Richardson and Co.

As it is scarce possible, in compiling a catalogue of this nature, but that some omissions and errors relating to the titles, editions, dates of the year, prices, &c. must happen; the author will think himself greatly obliged to any gentleman, who will favour him with an account of any necessary corrections or additions, that they may be inserted in a future edition.

The postage of letters, directed for the author, to the care of the publisher, will be paid with pleasure. If any Bookseller should have any Books on these subjects, not mentioned in this catalogue, the Author would be glad to purchase them.

ALPHABETICAL CATALOGUE

OF THE

AUTHORS NAMES AND THEIR WORKS.

A

A CETARIA, by Evelyn	1699
Adam in Eden, by Cole	1657
Adam out of Eden, by Adam Speed	1659
Adam's Luxury, and Eve's Cookery	1744
Adams. Micrographia illustrata	1746
<i>Adanson</i> . Natural History of Senegal	1757
Advancement of Arts, Manufactures, &c.	1772
<i>Agricola</i> , on Improving Estates, by Bradley	1721
Agriculture. Worlidge's System of Agriculture	1668
— Laurence's ditto	1726
— Molesworth on Agriculture	1723
— Rye's Observations on it	1730
— Dublin Society's Observations on it	1736
— Maxwell's Agriculture in Scotland	1743
— Doddsley's Poem on Agriculture	1753
— Essay on Agriculture	1754
— New System of Agriculture	1755
— Honour of Agriculture	1760
— Essay on Agriculture	1760
— Essay on the Theory of Agriculture	1763
— On improving Agriculture	1763
— Foreign Essays on Agriculture	1764
— Agriculture and Commerce, a Dialogue	1765
— Dickson's Treatise on Agriculture	1765
— Baker's Experiments in Agriculture	1765
— Impartial View of Agriculture	1767. 1766
— Of Great-Britain and North-America	1766
— Dossie's Memoirs of Agriculture	1771. 1768

Agriculture. Comparifon of French and English	-	1769
—— Young's Experimental Agriculture	-	1770
—— Fordyce's Elements of Agriculture	-	1771
—— Mills's Elements of Agriculture	-	1771
—— Effays on the Encouragement of it	-	1772
Albine. Natural History of English Insects	-	1734
Alexis. Secretes of the Revd. Maifter Alexis	-	1595
Almond. English Horfeman	-	1673
Aleppo. Ruffel's Natural History of Aleppo	-	1756
Alleyne. New English Difpenfatory	-	1733
Allen. Farrier's Affiftant	-	1737
Alfton. Index Medicamentorum	-	1752
—— Tiocinium Botanicum	-	1753
—— Differtation on Botany	-	1753
—— Lectures on the Materia Medica	-	1770
Almageftum Botanicum Pluknetii	-	1696
Amaltheum Botanicum, Pluknetii	-	1703
American Phyfician, by Hughes	-	1672
Analogy of Vegetables and Animals, by Parsons	-	1754
Ananas. A Treatife on the Pine-Apple	-	1767
Anatomy of Vegetables and Plants, by Grew	- 1672.	1652
—— Collins's System of Anatomy	-	1685
—— Of a Horfe, by Stubbs	-	1766
Ancient Husbandry reftored, by Switzer	-	1732
Andrews (Richard) Vide Gooze	-	1578
Animal Creation. A Philofophical Survey	-	1767
Arabia Felix. A Voyage there	-	1732
Architecture. Lightoler of Farm-houfes	-	1766
Armstrong. History of the Ifland of Minorea	-	1752
Arnolde. Chronicle or Customes of London	-	1521
Arte of Gardeninge, by Hyll	- 1593.	1586. 1574
Art of Gardening, by Worlidge	-	1700
—— Of Gardening, by Lawrence	-	1717
—— Of Planting and Grafting, by Mafcall	1652.	1572
—— Of Making Common Salt, by Brownrigg	-	1748
—— Of Making Wines from Fruits	-	1760
Arts Improvement, by Snow	-	1715
Arts Manufactures and Commerce, by Cockings	-	1768
Atwell. Faithful Surveyor	-	1662
Auricula. Thompson's Properties of a Fine Auricula	-	1757
Auften. Observations on Fruit-trees	- 1631.	1657
Authentic accounts of the Price of Wheat	-	1765
B.		
Bacon. Sylva Sylvarum	-	1670
B. I. the Book of Thrift, by I. B.	-	1591
Baker.		

Baker. Microscope made easy	-	-	1743
Bailey. Advancement of Arts	-	-	1772
Ball. Pharmacopæia Domestica	-	-	1762
Bancroft. Natural History of Guyana	-	-	1769
Barbadoes. Ligon's History	-	-	1657
— Hughes's History	-	-	1750
Barham. Essay on Silkworms	-	-	1719
Bark. Tanning without Bark	-	1749.	1731
Barley Wine. Dissertation on it	-	-	1750
Barnes. on Raising Trees from Leaves, (Vide Hill)	-	-	1755
Barren Lands improved by Blackwell	-	-	1741
Barren Lands Hitt's Improvement of them	-	-	1760
— On their Cultivation, by Turbilly	-	-	1762
Barrow. Medical Dictionary	-	-	1749
Bartlet. Gentleman's Farriery	-	-	1753
— Pharmacopæia Hippiatrica	-	-	1765
Bartram. Observations on his Travels in America	-	-	1751
Bates. Mysteries of Nature and Art	-	-	1635
Bedford Level. Proposals for Draining it	-	-	1726
Bees. Hyll's Perfite Ordering and Nature of Bees	-	-	1574
— Butler's Feminine Monarchie	-	1637.	1609
— Levet's Ordering of Bees	-	-	1634
— Remnant's Treatise on Bees	-	-	1637
— Hartlib's Commonwealth of Bees	-	-	1657
— Purchas's Manner of Ordering the Bees	-	-	1657
— Lawson's Husbandry of Bees	-	-	1668
— Geddes's Method of Bee-hives	-	-	1677
— Warder's Monarchy of Bees	-	-	1716
— Dinsdale's Modern Art of Breeding Bees	-	-	1740
— Female Monarchy, by Thorley	-	-	1744
— Collateral Bee-boxes, by White	-	-	1756
— Mill's Essay on Bees	-	-	1766
— Wildman's Treatise on Bees	-	1770.	1769
— White on the Mystery of Bees	-	-	1772
Bensse. The Manner of Measuring Land	-	-	1538
Berenger. Art of Horsemanship	-	-	1771
Berkenhout. Botanical Lexicon	-	-	1764
— Outlines of Nat. Hist. of Gr. Britain	1771.	1770.	1769
Billings. Treatise on Carrots	-	-	1764
Bingham, (Captain.) Vide Googe	-	-	1578
Blackstone. Fasciculus Plantarum circa Harefield	-	-	1737
— Specimen Botanicum	-	-	1746
Blackwell. A curious Herbal	-	-	1737
— Improvement of Barren Lands	-	-	1741
Blagrove. Supplement to Culpepper	-	-	1666
Blagrove.	-	-	

Blagrave, (Samuel.) Epitome of Husbandry	-	1666
Blair. Botanic Essays	-	1720. 1718
—— Pharmaco-Botanologia	-	1723
Blake. Gardener's Practice	-	1664
Blundeville. On Horsemanshippe	-	1566
Blythe. English Improver Improved	-	1649
—— Survey of Husbandry	-	1653. 1649
Boate and Molineux. Natural History of Ireland	-	1755
Bobart. Morisoni Historia Plantarum	-	1672
Bohun. Law of Tythes	-	1730
Book of Thrift by I. B.	-	1589
Borlase. Natural History of Cornwall	-	1758
Botanical Dictionary by Bradley	-	1728
Botanical Garden. Hill's Idea of one	-	1758
Botanical Lexicon by Berkenhout	-	1764
Botanic Essays by Blair	-	1720. 1718
Botanologia by Salmon	-	1708
Botany. Institutions of Botany by Tournefort	-	1719
—— Short's Explanation of the technical Terms	-	1731
—— Alston's Dissertation on Botany	-	1754
—— Lee's Introduction to Botany	-	1765. 1760
Bourn, on Wheel-Carriages and Roads	-	1764
Bracken. Gentleman's Pocket Farrier	-	1735
—— Farriery improved	-	1737. 1740
Bradley. History of Succulent Plants	-	1716
—— New Improvement in Planting	-	1719
—— Philosophical account of the works of Nature	-	1721
—— Improvements of Waste Lands	-	1723
—— Improvements of Planting and Gardening	-	1724
—— Herefordshire Orchards	-	1724
—— Treatise of Husbandry and Gardening	-	1724
—— Survey of Ancient Husbandry	-	1726
—— On Husbandry and Gardening	-	1726
—— Experimental Husbandman and Gardener	-	1726
—— British Housewife and Gardeners Companion	-	1726
—— Family Dictionary	-	1726
—— Discourses of Earth, Water, Fire and Air	-	1726
—— Gentleman and Gardener's Calendar	-	1728
—— Botanical Dictionary	-	1728
—— Guide in regard to Cattle	-	1729
—— General treatise of Husbandry and Gardening	-	1729
—— Country-Gentlemen's Monthly Director	-	1736
—— General Treatise of Husbandry and Gardening	-	1766
Bread. Jackson's Essay on Bread, and Answer	-	1758
		Break.

Break. Complete System of Land Surveying	1771
Breaking Horses, by Pembroke	1761
Brickwell. Natural History of North-Carolina	1739
Bridge. Gentleman and Farmer's Guide	1735
British Settlements. Present State by Douglass	1755
British Colonies. Observations on them	1769
British Plants. Wilson's Synopsis	1744
British Plants. Short's Treatise on them	1745
British Vegetables. Treatise on them	1751
British Zoology, by Pennant	1766
Broad-Wheel-Carriages. Wickham on them	1755
Broad-Wheels. Whitworth on their Improvement	1767
Brockhull, (Henry.) Vide Googe	1578
Brooks. Natural History of Chocolate	1730
Brown and Stephens. Cat. Horti Bot. Oxon.	1658
Brown. Complete Farmer	1759
——— Natural History of Jamaica	1756
Brownrigg. On Electrifying of Plants	1747
——— Art of making Common Salt	1748
Brunswicke. Booke of Distillation	1527
Bryce. The Mirror of the Worlde	1480
Buffon. Natural History of a Horse	1762
Bulleyne. Bulwarke of Defence	1562
Butler. Feminine Monarchie	1609

C.

Calender. The Sheparden Calendar	1631.	1559
——— Evelyn's Kalendarium Hortense	-	1664
——— Whitmill's Gardeners Universal Calendar	-	1726
——— Bradley's Gentleman and Gardeners Calendar	-	1728
——— Miller's Gardeners Calendar 1st. Ed.	-	1731
——— Bradley's Farmer's Monthly Director	-	1736
——— Stevenson's Gentleman's Gardeners Director	-	1746
——— Miller's with the medicinal Plants	1765.	1748
——— Scot's Gardeners Directory	-	1755
——— Hill's Gardeners New Calendar	-	1758
——— Stillingfleet's Calender of Flora	-	1762
——— Wheeler's Dictionary and Calendar	-	1763
——— Mawe's Every Man his own Gardener	-	1766
——— Garton's Dictionary	-	1769
——— Meader's Modern Gardener, or Universal Cal.	-	1771
——— Farmer's Kalendar, or Monthly Directory	-	1771
Cantabrigienses Plantæ, à Raiio	-	1660
		Carolina.

Carolina. Catesby's Natural History	-	1752. 1743. 1731
——— Brickwell's Natural History	-	1739
——— Description of South-Carolina	-	1763
Carpenter. Retired Gardener	-	1717
Carrots. Billing's Treatise on Carrots	-	1764
Catesby. Natural History of Carolina	1752. 1743.	1731
——— Appendix	-	1748
——— Hortus Europæ Americanus	-	1767
Catalogue. Gardeners Catalogue of Trees and Shrubs		1730
——— Gray's Catalogue of Trees and Shrubs for Sale		1764
Cattle. Government of Cattle by Lambert	-	1727
Ceylon. Knox's Historical Relation of Ceylon	-	1681
Chambers. Views of Kew Garden	-	1763
——— Dissertation on Oriental Gardening	-	1771
Chamberlaynes. England's Wants	-	1668
Chemistry. Dossie's Institutes of experimental Chem.	-	1759
Child. The Legacy. Vide Hartlib	-	1651
Chocolate. Natural History of Chocolate	1730.	1724
——— James's Treatise on Chocolate	-	1746
Chronicon. Pretiosum, by Fleetwood	-	1707
Churchy. Good Husbandry and on Fish	-	1599
Clarke. Landed-man's Assistant	-	1715
Clark. Observations on Shoeing Horses	-	1771
Claridge. Shepherd of Banbury's Prognostics	-	1744
Clayton. Flora Virginica	-	1762. 1739
Coal-mines. A Treatise on Coal-mines	-	1769
Clergyman's Recreation, by Laurence	-	1717
Cockaine. A Short Treatise on Huntynge	-	1591
Cockings. Arts, Manufactures and Commerce	-	1768
Coffee. Natural History of Coffee	-	1682
——— Dela Roque's Account of Coffee	-	1732
——— Douglass's History of the Coffee-tree	-	1727
——— James's Treatise on Coffee	-	1746
Coker. Survey and Natural History of Dorsetshire		1732
Cole. Introduction to the Knowledge of Plants	-	1654
——— Art of Simpling	-	1654
——— Adam in Eden	-	1657
Coleseed. Young's Essay on Coleseed	-	1770
Cole-balles. A new cheap and delicate Fire, by Plattes		1630
Collins. System of Anatomy	-	1685
Columella, by Gibson	-	1744
Comber. On the Farmers Letters	-	1770
——— Real Improvements in Agriculture	-	1771
Combrune on Brewing	-	1759
Commelyn on Orange-trees	-	1683

Common

Commons Complaints on Waste of Woods	1611
Commons. Against Inclosing Common-field-land	1732
—— Improvement of inclosing Commons	1732
—— Homer on Inclosure of Common-fields	1766
Companion. The Gentleman's Companion	1754
Cooke, on Forest-trees	1717. 1676
Corn. The True and Admirable Art of Setting Corn	1600
—— Price of Corn for 600 years, by Fleetwood	1707
—— Discovery of the Multiplication of Corn	1734
—— Considerations on the Dearness of Corn	1757
—— On the Corn-Trade, Corn-Laws, &c.	1766
—— On the Bounties on Exported Corn	1768
—— Address to the Corn-Farmers	1768
—— Considerations on the Exportation of Corn	1770
—— A Plan for Reducing the Price of Corn	1771
—— Wimpey, on the Exportation of Corn	1770
—— Young, on the Exportation of Corn	1770
—— Plan for reducing the price of Corn	1771
Cornwal. Borlase's Natural History	1758
Cotton. Planters Manual	1675
Country-Gentleman's Vade-mecum, by Jacob	1717
—— Companion, by Switzer	1732
Countryman. Mascall's Country-man's Jewel	1680
—— Lambert's Countryman's Treasure	1688
—— Recreation	1654
Cowel. Curious and Profitable Gardener	1730
Curiosities of Nature and Art	1707
Cytisus. Switzer's Dissertation on the Cytisus	1731
Cyder, Stafford's Dissertation on Cyder	1753. 1729
Cyderist. The Complete Planter and Cyderist	1685
Cyder-Royal. Sir John Moore's Receipt to make	1721

D.

Dale. Pharmacologia	1737. 1710
Datforth. (Henry) Vide Googe	1578
Dearness. Considerations on the Dearness of Corn	1757
Decades. Martin's Decades of Rare Plants	1728
—— Bradley's Decades of Succulent Plants	1716
Decay of England, by the Multitude of Shepe	1588
Deering. (Richard) Vide Googe	1578
Deering. Catalogue of Nottingham Plants	1738
De Gray. Complete Horseman and Farrier	1639
De la Fosse. On Horses	1755
Delights	

Delights of Flower-painting	-	1756
Dendrometer, by Duncombe, for measuring Timber	-	1769
Dennis. (Henry) Vide Googe	-	1578
Derham. On Wasps	-	1725
De Sauriers. Guide to the Knowledge of Horses	-	1769
Dicks. Gardeners Dictionary	-	1769
Dickson. On Agriculture	-	1769. 1765. 1764
Dictionary, of Husbandry, Gardening and Commerce	-	} 1704
Dictionary Rusticum	-	
Family Dictionary	-	1726
Bradley's Botanical Dictionary	-	1728
Miller's Gardeners Dictionary	-	1768. 1731
James's Medicinal Dictionary	-	1744
Wallis's Farrier's and Horseman's Dictionary	-	1758
Wheeler's Botanist's and Gardeners Dict.	-	1763
Complete Farmer, or Dictionary of Husb.	-	1764
Dicks's Gardeners Dictionary	-	1769
Mawe's Gardeners Dictionary	-	1770
Miine's Botanical Dictionary	-	1770
Digges. Tectonicon, or Treatise of Surveying	-	1631
Digby. On Vegetation	-	1661
Dillenius. Raii Synopsis methodica Stirp. Brit.	-	1724
Hortus Elthamensis	-	1732
Historia Muscorum	-	1741
Dinsdale. On Bees	-	1740
Discovery of Subterranean Treasure, by Plattes	-	1637
Discourse on Fish and Fish-ponds	-	1599
Diseases of Horses, by Osmer	-	1759
Dispensatory. Alleyne's New English Dispensatory	-	1733
Lewis's new Dispensatory	-	1753
Dissertation on Barley Wine	-	1750
Dodoen's Herbal	-	1586
Dodley. Poem of Agriculture	-	1753
Description of the Leaseowes	-	1764
Donaldson. Husbandry anatomized	-	1697
Dossie. Institutes of Experimental Chemistry	-	1759
The Elaboratory laid open	-	1758
On Pot-Ash and Barilla	-	1767
Memoirs of Agriculture	-	1771. 1768
Douglafs. On the Guernsey Lily	-	1725
On the Coffee-berry	-	1727. 1725
Present State of the British Settlements	-	1755
Dove. Strictures on Agriculture	-	1770
Draining Bedford Level	-	1726
Draining the Fens, by Dugdale	-	1772. 1662
		Drope.

Drope. On Fruit-trees	1672
Druid. Wheeler's Modern Druid	1747
Drury. Illustrations of Natural History	1770
Dublin Society's Instructions for Hop-poles	1733
----- Observations	1736. 1739
----- Essays	1740
Dubravius. On Fish and Fish-ponds	1599
Ducket. On Improvement of Land	1659
Dugdale. Embanking and Draining the Fens	1772. 1662
Du Hamel. Mill's Translation of his Husbandry	1759
----- Miller's Translation of his Elements	1764
Duncombe. On Measuring Timber Standing	1769
Dutch Gardiner, or Florist, by Van Oosten	1703
----- Florist	1758
----- Florist, by Van Campen	1764
E.	
East. Pocockes's Description of the East	1743
Eden. Hill's Eden, or complete Body of Gardening	1757
Edwards. Gleanings of Natural History	1758
----- Essays on Natural History	1770
Electrifying of Plants, by Brownrigg	1747
Elements. Du Hamel's Elements of Agriculture	1764
----- Fordyce's Elements of Agriculture	1765
----- Mills's Elements of Agriculture	1770
----- Fordyce's Elements of Agriculture and Vegetat.	1771
Elliot. Essays on Field-Husbandry	1764
Elthamensis Hortus.—(Vide Dillenius)	1732
England's Decay, by the Multitude of Shepe	1588
----- Happiness encreased, by Potatoes	1664
----- Wants, by Chamberlayne	1668
----- Improvement revived, by Smith	1670
----- Interest, or the Farmer's Friend	1721. 1705
England. Young's Tour through the South	1769. 1767
----- Young's Tour through the North	1770
----- Young's Tour through the East	1771
English Interest	1684
Enquiry, into the Prices of Wheat	1765
----- Into Political Economy	1767
----- Into the Scarcity of Timber	1766
----- Into the high Price of Provisions	1767
----- About inclosing open Fields	1768
Epitome of Husbandry, by S. B.	1669
Essay on Timber-trees, by Hall	1645
	Essay

Essay on the Silkworm, by Barham	1719
— Hales's Statical Essays	1769. 1727
— On inclosing in Scotland	1729
— On Principles of Tillage and Vegetation	1731
— Against inclosing Common-Field Land	1732
— On Horse-hoeing Husbandry, by Tull	1733
— On Commerce, Agriculture, &c.	1754
— On Planting, by Hanbury	1758
— On Bread, and Answer to the Reply	1758
— On Brewing	1759
— On Agriculture	1760
— On the Theory of Agriculture	1763
— On Improving Agriculture	1763
— Foreign Essays on Agriculture	1764
— On Field-Husbandry, by Elliot	1764
— On Husbandry, by Harte	1764
— On Bees, by Mills	1766
— Select Scotch Essays from the Museum Rusticum.	1767
— On Design in Gardening	1768
— Georgical Essays by Hunter	1772. 1769
— Towards a Nat. Hist. of Vegetation, by Hales	1769
— On Natural History, by Edwards	1770
— On the Weather, by Mills	1770
— On Agriculture, &c. by Mills	1772
Evelyn. French Gardener	1658
— Sylva and Pomona	1664
— Kalendarium Hortense	1664
— Terra: a Philosophical Discourse of Earth	1675
— Treatise of Orange-trees	1693
— Acetaria, or a Discourse of Sallets	1699
— All his Works, in fol. 4th. Ed. 1704. 5th. Ed.	1729
— (Junior) of Gardens	1673
Euonymus. Morwyng's Treasure of Euonymus	1559. 1575
Experiments in Agriculture, by Baker	1765
Experimental Agriculture, by Young	1770
Exportation of Corn Considered	1770
— Wimpey's Thoughts on Exportation	1770
— Young's Expediency of allowing it	1770
F.	
Facio. Fruit-walls improved	1699
Falkingham. Survey	1610
Fallowing. On the Manner of Fallowing Ground	1724
Famine. Platte's Remedies against Famine	1684. 1596
Farm. Plan of an Experimental Farm	1767
	Farms.

Farms.	Uniting Farms, disadvantageous	-	1766
—	Small Farms destructive to the Country	-	1764
Farmers	Friend, or England's Interest	-	1705
—	Guide	-	1735
—	Bradley's Farmers Calendar	-	1736
—	Brown's Complete Farmer	-	1759
—	Farmers Guide	-	1760
—	Complete Farmer, or Dictionary of Husbandry	-	1764
—	Farmers Kalendar	-	1771
—	Complete English Farmer	-	1771
—	Observations on the Farmer's Letters	-	1767
—	Farmer's Guide, by Young	-	1770
Farming.	Treatise on Welsh Farming	-	1756
—	Woods's Treatise of Farming	-	1757
Farrier.	The Gentleman's Pocket Farrier	1772.	1735
—	Assistant, by Allen	-	1737
—	Wallis's Farrier's Dictionary	-	1758
Farriery.	Improved by Bracken	-	1740. 1737
—	Bartlett's Gentleman's Farriery	-	1753
—	Reeve's Art of Farriery	-	1763
Fens.	Dugdale, on Imbanking and Draining Fens.	-	1662
Fen-banks.	To make them impregnable, by Harrison	-	1766
Firmin.	Proposals for Employing the Poor	-	1681
Fish and Fish-ponds,	by Churchy	-	1599
Fish and Fruit.	-	-	1600
Fitz-Herbert's Husbandry	-	-	1534
—	Surveying and Improvements	-	1539
—	Reprinted, with a Treatise of Xenophon	-	1767
Flanders Husbandry,	by Sir Richard Weston	-	1645
Flanders Husbandry and English compared	-	-	1726
Fleetwood's Chronicon Pretiosum	-	-	1707
Flora.	Rea's Flora, or Complete System of Gardening	-	1665
—	Rea's Flora, Ceres and Pomona	-	1676
—	Clayton's, Flora Virginica	-	1762. 1739
—	Hill: Flora Britannica	-	1760
—	Hudson: Flora Anglica	-	1762
Florida.	Roberts's Nat. Hist. of East Florida	-	1763
Florist.	Gilbert's Florist's Vade-mecum	-	1702
—	Van Oosten's Complete Florist	-	1703
—	Complete Florist	-	1747
—	Dutch Florist, by Van Campen	-	1764
Flower-Garden.	Hughes's Flower-Garden and Vineyard	-	1683
—	Displayed by Moore	-	1734
—	Complete in four Sheets	-	1753
—	Delights of it	-	1756

Flowers. On their Irratibility	-	1767
Fordyce. Elements of Agriculture	-	1765
——— Elements of Agriculture and Vegetation	-	1771
Foreign Essays	-	1764
Forest-Lands. Proposals for felling them	-	1763
Forest-Trees. By Cooke	-	1717. 1676
——— By Evelyn	-	1729. 1664
Forests. Laws of the Forests, by Manwood	-	1615
Forster. Boslu's Travels through Louisiana	-	1771
——— Catalogue of the Animals of North-America	-	1771
——— Toreen's Voyage to China and the East-Indies	-	1771
——— Kalm's Travels into North-America	-	1771
——— Nova Species Insectorum	-	1772
——— Method of Essaying and Classing Minerals	-	1772
Frampton. Joyfull Newes out of the new-founde Worlde	-	1580
Franklyn. Vide Googe	-	1578
French Gardener, by Evelyn	-	1658
Fruit-Gardener. On Fruit-Gardens	-	1768
Fruit-trees. Austen on Fruit-trees	-	1631
——— Drope's Sure Guide of Raising Fruit-trees	-	1672
——— Langford, on Fruit-trees	-	1696
——— Facio's Fruit-walls improved	-	1699
——— Hitt, on Fruit-trees	-	1755
Fyshyng. The Boke of Fyshyng	-	1550

G.

Garden. Of Pleasant Flowers, by Parkinson	1656.	1629
——— Tradescant's Garden at South Lambeth	-	1656
——— Of Eden, by Platt	-	1658
——— Oxford Botanical Garden	-	1658
——— Blois Garden	-	1669
——— Evelyn, of Gardens	-	1673
——— Edinburgh Physical Garden	-	1683
——— Chelsea Garden, by Rand	1730.	1739
——— Eltham Garden, by Dillenius	-	1732
——— Stowe Gardens	-	1748
——— Hill's Idea of a Botanical Garden	-	1758
——— Kew Garden	1768. 1769.	1763
——— Cambridge Botanical Garden, by Martyn	-	1771
Gardener. The Expert	-	1654
——— The Complete Gardener	-	1679
——— Meager's English Gardener	-	1683
——— London and Wise's Complete Gardener	-	1699
——— The Gentle Gardener	-	1706
——— London and Wise's, The Retired Gardener	-	1706

Gardener.

Gardener. Carpenter's Retired Gardener	-	1717
— Recreation, by Switzer	-	1717
— Gardeners Catalogue	-	1730
— Cowel's Curious and Profitable Gardener	-	1730
— Gardener's Pocket-book	-	1754
— North's Gardener's Catalogue	-	1759
— London Gardener	-	1760
— Justice's British Gardener's Director	-	1767
Gardening. Hyll's Arte of Gardening	1593. 1586.	1574
— Worlidge's Art of Gardening	-	1700
— Laurence's Ditto	- 1726.	1717
— Bradley on Gardening	- 1726.	1724
— Langley's Principles of Gardening	-	1728
— Trowel's New Treatise of Gardening	-	1739
— Shenstone's unconnected thoughts on it	-	1764
— On the present Taste of Gardening	-	1767
— Essay on Design in Gardening	-	1768
— Wheatley on Modern Gardening	-	1770
— Chambers on Oriental Gardening	-	1771
— Hanbury's Body of Gardening	- 1770.	1773
Garton. Practical Gardener's Directory	-	1769
Geddes. Method of Bee-hives	-	1677
Gesse. Perfect Use of Silk-worms	-	1607
Gendre. On Fruit-trees	-	1660
Generation of Plants, by Logan	-	1736
Gentleman. The Gentlemens Jockey	-	1687
— Moore's Gentleman and Farmer's Friend	-	1695
— Farmer, on the Husbandry of Flanders	-	1726
— Gentleman's Steward, by Richards	-	1730
— Gentleman's Pocket-Farrier, by Bracken	-	1735
— Gentleman and Farmer's Guide	-	1735
— Gentleman Gardener, by Stevenson	-	1746
— Pocket Farrier	-	1772
Georgics of Virgil, translated by Neville	-	1767
Georgical Essays, by Hunter	1769. 1770. 1771.	1772
Gerard. Herbal	-	1597
— Improved by Johnson	- 1636.	1633
Gibson. Translation of Columella's Husbandry	-	1744
— Translation of Renetus on Oxen and Horses	-	1748
— On the Diseases of Horses	-	1750
Gilbert. The Florist's Vade-mecum	-	1702
Giles. On Pines and Melons	-	1766
Gleanings of Natural History, by Edwards	-	1758
Googe. Whole Art of Husbandry	1631. 1614.	1578
Granger. The Sugar-Cane, a Poem	-	1764
	E e 2	Grasses.

Grasses. Raising of Grass-seeds	-	-	1724
——— North, on Grasses	-	-	1759
——— Stillingfleet on Grasses	-	-	1762
——— Templeman on Grasses	-	-	1766
Gray. Catalogue of Trees and Shrubs for Sale	-	-	1740
Grazier. The Complete Grazier	-	-	1767
Great-Britain's Present State of Agriculture	-	-	1766
Grew. Anatomy of Plants	-	1685.	1652
——— On the Vegetation of Plants	-	-	1661
——— Anatomy of Vegetables	-	-	1672
——— Idea of a Philological History	-	1682.	1673
——— Comparative Anatomy of Trunks	-	-	1675
Groshead. Treatise of Husbandrie	-	-	1500
Guiana. Natural History of Guiana, by Bancroft	-	-	1769
Guide. Gentleman and Farmer's Guide	-	1760.	1735
——— Young's Farmers Guide	-	-	1770
Gyllenborg. Mills's Elements of Agriculture	-	-	1770

H.

Hackluyt. Voyages, Travels and Discoveries	1599.	1589
Haddington. Treatise on Forest-trees	-	1760
Hale. Statical Essays	-	1769.
Hale. Body of Husbandry, (Vide Hill)	-	1757
Hanbury. Essay on Planting	-	1758
——— History of his Plantation at Langton	-	1766
——— Body of Planting and Gardening	1769.	1773
Harrison. On Fen-Banks	-	1766
Harte. Essays on Husbandry and Treatise on Lucern	-	1764
Hartlib. Legacy	-	1650
——— Defects and Remedies of English Husbandry	-	1651
——— Commonwealth of Bees	-	1657
Hatche. (John.) Vide Googe	-	1578
Haukyng, Huntynge and Fyshyng	-	1550
Hearbes. Propertie of Hearbes and Flowers	-	1582
Heath. Natural History of Scilly	-	1750
Hemp. Translation of Marcandier's Treatise on it	-	1764
Herbal. The Grete Herbal	1539.	1527.
——— Macer's	-	1542
——— Lyte's	-	1586.
——— Gerard's	-	1597
——— Ram's	-	1606
——— Johnson's	-	1633
——— Newton's	-	1770.
——— Lovel's	-	1659
——— Pechey's	-	1694
Herbal	-	

Herbal. Salmon's	- - - -	1708
— — Millar's	- - - -	1722
— — Hill's	- - - 1756.	1754
— — Sheldrake's	- - - -	1756
Herefordshire Orchards. (Vide Bradley 1716)	-	1724
Highways. Whitworth on the Highways	-	1771
Hill. (Aaron.) On Vines	- - -	1749
Hill. General Natural History	- - -	1748
— Theophrastus	- - -	1748
— History of Plants	- - -	1751
— Historia Materiae Medicæ	- - -	1751
— Inspector, or Essays in Natural History	-	1752
— Useful Family Herbal	- - -	1754
— Method of Raising Trees from the Leaves	1758.	1755
— British Herbal	- - -	1756
— Eden, or Compleat Body of Gardening	-	1757
— Complete Body of Husbandry	-	1757
— Sleep of Plants	- - -	1757
— Outlines of a System of Vegetation	-	1758
— Account of a Stone which produces Mushrooms	-	1758
— Method of producing Double Flowers from Single	-	1758
— Gardener's Calendar	- - -	1758
— Swammerdam's History of Insects	-	1758
— Idea of a Botanical Garden	-	1758
— The Vegetable System annually from	1759 to	1773
— Gardening explained to all Capacities	-	1759
— Usefulness of the Knowledge of Plants	-	1759
— Exotic Botany	- - -	1759
— Flora Britannica	- - -	1760
— Hortus Kewensis, 1st Edition in 1768, 2nd Ed. in	-	1769
— Family Practice of Physic	- - -	1769
— Herbarium Britannicum	- - -	1770
— Construction of Timber explained by the Microscope	- - -	1770
Hitt. A Treatise on Fruit-trees	-	1755
— Treatise on Husbandry and Barren Lands	-	1760
Hogs. Young's Essay on Fattening Hogs	-	1770
Holland. Pliny's Natural History	-	1601
Hollybush. Most excellent Homish Apothecary	-	1561
Homes. Principles of Agriculture and Vegetation	-	1757
Homer. On Dividing Common Fields	-	1766
— On Preserving the Public Roads	-	1767
Hope. A Description of the Rheum Palmatum	-	1766
Hop-Garden. Scot's Perfect Platform of one	-	1574
Hop-Poles. Instructions for managing them	-	1733

Horfe. Propertees and Medecynes for a Horfe	-	1500
— Remedies for Diseases in Horfes	-	1572
— To chuse, &c. Hunting and Running Horfes	-	1597
— Duke of Newcastle's method of Dressing Horfes	-	1669
— Gibson's Renetus on the Diseases of Horfes	-	1748
— Gibson on the Diseases of Horfes	-	1750
— Natural History of a Horfe	-	1762
— Pembroke's Method of Breaking Horfes	-	1761
— Stubb's Anatomy of a Horfe	-	1766
— De Saunier's Knowledge of Horfes	-	1769
Horfe-hoeing Husbandry, by Tull	-	1731
Horseman and Farrier, by De Gray	-	1639
— — Almond's English Horseman	-	1673
Horsemanship. Treatise on Horsemanship, by Solieysell	-	1717
— — — Berenger's History of the Art	-	1771
Hortus. Catalogus Plantarum in Horto J. Tradescanti	-	1656
— — — Catalogus Horti Botanici Oxoniensis	-	1658
— — — Hortus Regius Blesensis, Morisoni	-	1669
— — — Hortus Medicus Edinburgensis	-	1683
— — — Index. Plant. offic. in Horto Chelseyno	1739.	1730
— — — Hortus Elthamensis	-	1732
— — — Hortus Kewensis	-	1768. 1769
— — — Horti Botan. Cantabr. Pl. Cat. per Martyn	-	1771
Hortus Europæ Americanus	-	1767
Hot-houses. Sheldrake on Heat and Cold of Hot-houses	-	1716
Houghton. Collection of Husbandry	1727. 1697.	1681
Howe. Phytologia Britannica (<i>dele Botanica</i>)	-	1650
Hudson. Flora Anglica	-	1762
Hughes. American Physician	-	1672
— Flower-Garden and Vineyard	-	1683
— Flower-Garden	-	1734
Humphreys. Nature Displayed	-	1736
Hunter. Georgical Essays	1769. 1770. 1771.	1772.
Huntynge. The Boke of Huntynge	-	1550
— — — Cockaine's Treatyse of Huntynge	-	1591
Husbandman. Smith's Husbandman's Magazine	-	1704
— — — Reformed by Speed	-	1651
— — — Companion	-	1754
— — — Maxwell's Practical Husbandman	-	1757
Husbandry. Fitz-Herbert's Husbandry	-	1767. 1534
— — — Googe's Art of Husbandry	-	1578
— — — Tusser's Husbandry	-	1562
— — — Sir Richard Weston, on Flemish Husbandry	-	1645
— — — Hartlib's Defects and Remedies	-	1651
— — — Blagrave's Epitome	-	1669
		Husbandry.

Husbandry. Meager's Mystery of Husbandry	-	1697
— — Donaldson's Husbandry Anatomized	-	1697
— — Mortimer's Treatise of Husbandry	1761.	1706
— — Switzer's Antient Husbandry restored		1732
— — Ellis's Modern Husbandry	- 1744.	1733
— — Columella, by Gibson	-	1744
— — Lisle's Observations on Husbandry	-	1756
— — Mill's Du Hamel's Husbandry	-	1759
— — Mills's System of Practical Husbandry		1762
— — Harte's Essays on Husbandry	-	1764
— — Randal's Semi-Virgilian Husbandry	-	1764
Huswife. The Good Huswife's Hande-mayde	-	1588
— — English Housewife, by Markham	-	1656
Hyll. Perfite Ordering and Nature of Bees	-	1574
— — Arte of Gardeninge	- 1593. 1586.	1574

J.

Jackson. Essay on Bread and Answer	-	1758
Jacob. Country-Gentleman's Vade-mecum	-	1717
Jamaica. Sloane's Catalogue of Jamaica Plants	-	1696
— — Sloane's Voyage and Natural History	1725.	1707
— — Brown's Natural History of Jamaica	-	1756
James. Theory and Practice of Gardening	-	1712
James. Dr. Medicinal Dictionary	-	1744
— — Treatise on Tobacco	- -	1746
Icknographia Rustica, by Switzer	-	1717
Jeffries. Nat. Hist. of the French Dominions in America		1760
Jewel-house of Art and Nature, by Plattes	-	1653
Iliffe. Complete Vineyard	- -	1670
Impartial View of English Agriculture	- 1767.	1766
Improver Improved, by Blythe	- 1653.	1649
Improvement of Land, by Duckett	-	1659
Improving Estates	- -	1744
Improvement of Husbandry, by Murray	-	1732
Inclosing. Essay on Inclosing in Scotland	-	1729
— — — Essay against Inclosing	-	1732
— — — Homer, on Dividing Common Fields	-	1766
— — — Enquiry for and against Inclosing	-	1768
— — — Advantages of Inclosing, by Pennington		1770
Insects. Albins's English Insects	-	1734
— — Wilkes, on English Insects	-	1749
— — Swammerdam's History of Insects, by Hill		1758
— — Instructions for collecting and preserving them		1771
Insectorum Hieroglyphica, à Simson	-	1624
— — — Nova Species Insectorum, à Forster	-	1772

Introduction to Botany, by Lee	-	1760
Interest of Scotland considered	-	1733
——— Of the Land-owners	-	1734
Jockey. The Gentleman's Jockey	-	1687
Johnson. Gerard's Herbal	- -	1633
——— Mercurius Botanicus	- -	1634
Jones. A Poem on Kew Garden	-	1767
Josselyn. New-England's Rarities	-	1672
Joyful News out of the New-founde Worlde	-	1580
Ireland. Boate and Molineux's Natural History	-	1755
——— Thoughts on the Tillage of Ireland	-	1738
——— A view of the Manners of Ireland	-	1767
Irritability of some Flowers	- -	1767
Justice. Scot's Gardener's Director	-	1755
——— British Gardener's Director	-	1767

K.

Kalendar of the Shepards	- -	1559
Kalendar. Vide Calendar	- -	
Kent. Survey of Kent, by Philpot	- -	1659
Kew Garden. Chambers Views of Kew Garden	-	1763
——— A Poem, by Jones	- -	1767
——— By Hill	-	1769
Kilda. Macaulay's History of Saint Kilda	-	1764
King. D. D. (H—) Vide Googe	-	1578
Kitchen Garden. By Switzer	- -	1717
——— Foreign Vegetables, by Switzer	-	1729
——— Complete, in four sheets	-	1753
Knowles. Materia Medica, Botanica, Poetica		1723
Knox. Historical Relation of the Island of Ceylon		1681

L.

Lambert. Countryman's Treasure	-	1683
Lancashire. Nat. History of it, by Leigh	-	1700
Land. Ways and Means to raise the Value of it		1736
Land. Duckett on Improvement of Land	-	1659
Land-owners true Interest	- -	1734
Land Steward. By Laurence	-	1731
Landed-man's Assistant, by Clarke	-	1715
Langford. On Fruit-trees	-	1696
Langham. Garden of Health	-	1598
Langley. Improving Estates by Trees	-	1728
——— Principles of Gardening	-	1728
——— Pomona, or Fruit-Gardener	-	1729
Latimer. Sermon before Edward the 6th	-	1539
		Laurence.

Laurence. (Andrew) Vertuous Booke of Distillation	-	1527
Laurence. Clergyman's Recreation	-	1717
——— Art of Gardening	-	1717
——— System of Agriculture	-	1726
——— Duty of a Land-Steward	-	1743. 1731
Lawson. Orchard and Garden	-	1623. 1597
——— Husbandry of Bees	-	1668
Leaves. Hill's Method of raising Trees from them	-	1755
<i>Le Brun.</i> On Gardening. Vide James	-	1712
Lecaan. Virtues of Plants growing in Spain	-	1708
Lee. Introduction to Botany	-	1760. 1765
Legacy. Hartlib's Legacy	-	1650
Leigh. On Surveying Lands	-	1577
——— Nat Hist. of Lancashire, &c.	-	1700
Letsom. Nat. Hist. of the Tea-tree	-	1772
Letters. The Farmer's Letters, by Young	-	1767. 1769
——— On the French, respecting Agriculture	-	1769
Levet. Ordering of Bees	-	1634
Lewis. The New Dispensatory	-	1753
Lexicon. Berkenhout's Botanical Lexicon	-	1764
Ligon. History of the Trees in Barbadoes	-	1657
Lightoler. Architecture for Farm-houses	-	1766
Linnaeus. Genera Plantarum, translated by Milne	1771.	1772
Lisle. Observations on Husbandry	-	1756
Locke. On Vines and Olives	-	1766
Logan. On the Generation of Plants	-	1736. 1748
London and Wife. Complete Gardener	-	1699
——— ——— Retired Gardener	-	1706
London Gardener	-	1760
Lovel. Complete Herbal	-	1659
Lucern. An Account of Lucern, by Switzer	-	1729
——— Rocque's Treatise on Cultivating it	-	1760
——— Harte's Treatise on Lucern	-	1764
Lupton. A thousand Notable things	-	1586
Lyons. Fasciculus Plant, circa Cantabrigiam	-	1763
Lyte. Niewe Herbal	-	1586. 1578

M.

Macaulay. History of Saint Kilda	-	1764
Madder. Miller's Cultivation of Madder	-	1758
Magazine. Smith's Husbandman's Magazine	-	1704
Malbee, (Sir Thomas.) Vide Googe	-	1578
Malster. Complete Malster	-	1764
Mantissa Almagesti Botanici Pluknetii	-	1700
Manure.		

Manure. Discoveries for manuring Land	-	1648
—— Cat. of all sorts found in England. Tracts C. 9.		
Manwood. Laws of the Forest	-	1615
Marcandier. Treatise on Hemp	-	1764
Markham and Surfleet. Countrie Farme	-	1616
—— Countrie Housewife's Garden	-	1623
—— Art of Husbandry	-	1631
—— Farewel to Husbandry	-	1631
—— English Husbandman Enlarged	-	1635
—— Masterpiece	-	1644
—— Way to get Wealth	-	1648
—— English Housewife	-	1656
Marshall. Travels through Holland, &c.	-	1772
Martin, (Benjamin.) Natural History of England		1759
Martyn, (Joan.) Methodus Plant. circa Cantabrigiam		1727
—— Four Decades of rare Plants	-	1728
—— Tournefort's Plants near Paris	- 1732.	1728
—— Plantæ Cantabrigienses	-	1763
Martyn, (Thomas.) Catalogus Horti Botanici Cantabr.		1771
Mascall. New Arte of Planting and Grafting	1652.	1572
—— On Horses	-	1596
—— Government of Cattle	-	1627
—— On Cattle	-	1653
—— Countryman's Jewel	-	1680
Mason. The English Garden	-	1772
Massey or Maxie on Drilling Corn	-	1606
Materia Medica Botanica Poetica, à Knowles	-	1723
Mawes. Gardeners Calendar	-	1766
—— Gardeners Dictionary	-	1770
Maxwell. On Agriculture in Scotland	-	1743
—— Practical Husbandman	-	1757
Meador. Modern Gardener	-	1771
Meager. English Gardener	- 1697.	1683
Melons. Evelyn on Raising Melons	-	1693
Mercandier. On Hemp	-	1764
Memoirs of Agriculture, by Dossie	- 1771.	1768
—— Of a Country Philosopher, by Young	-	1770
Mercurius Botanicus. (Johnson)	-	1634
—— Lætificans. (Plattes)	-	1644
Merrett. Pinax Rerum Naturalium Britannicarum	-	1666
Micrographia illustrata, by Adams	-	1746
Microscope made easy, by Baker	-	1743
Microscopical Theatre of Seeds, by Parsons	-	1744
Millar. System of Linnæus explained	-	1770
Millar. (Jos.) Herbal	-	1722
Miller.		

Miller.	Gardeners Catalogue	-	-	1730
—	Dictionary	-	1731. 1752. 1759. 1763.	1768
—	Appendix to the Dictionary	-	-	1735
—	Calendar	-	1731. 1748.	1765
—	Figures of Plants	-	1755.	1760
—	Cultivation of Madder	-	-	1758
—	Elements of Agriculture	-	-	1764
Mills.	Practical Treatise on Husbandry	-	-	1759
—	Complete System of Practical Husbandry	-	-	1762
—	Essay on Bees	-	-	1766
—	Essay on the Weather	-	-	1770
—	Elements of Agriculture	-	-	1770
—	Essay on Agriculture, &c.	-	-	1772
Milne.	Botanical Dictionary	-	-	1770
—	Institutes of Botany	-	-	1771
—	A Translation of the Gen. Pl. of Linnæus	-	-	1772
Mines.	Pettus's History of the Mines in England	-	-	1670
—	Working of Mines, by Murray	-	-	1732
Modern Druid,	by Wheeler	-	-	1747
Modern Eden.	By Rutten	-	-	1767
Molesworth.	On Agriculture	-	-	1723
Molyneux.	Natural History of Ireland	-	-	1755
Monarchy of Bees,	by Warder	-	-	1716
Moore. Sir John.	Gentlemen and Farmer's Friend	-	-	1695
—	England's Interest or Farmers Friend	-	1721.	1705
Moore. (Philip.)	Hope of Helthe	-	-	1565
—	Prognostication for 34 Years	-	-	1573
Moore.	Columbarium or the Pidgeon-house	-	-	1735
Mordant.	Complete Steward	-	-	1761
Morwyng.	Treasure of Euonymus	-	1575.	1559
Morison.	Hortus Regius Blesensis	-	-	1669
—	Plantarum Historia	-	1699. 1680.	1672
Morris.	Plan for arranging accounts of Estates	-	-	1759
Mortimer.	Treatise of Husbandry	-	1761.	1706
Mountain.	Gardeners Labyrinth	-	1652. 1608.	1571
Mulberry-trees.	Pullein's Culture of them	-	-	1758
Murray.	On Husbandry and Mines	-	-	1732
Muscorum.	Historia à Dillenio	-	-	1741
Museum Rusticum	-	-	1763.	1766
—	Observations on the Museum Rusticum	-	-	1766
—	Experiments from the Museum Rusticum	-	-	1767
Mysteries of Nature and Art,	by J. Bate	-	-	1635

N.

Natural History. Holland's, Pliny's Natural History	1601
Nat. Hist. Lord Bacon's Observations on Natural Hist.	1670
— — — Oxfordshire, by Plot	1678
— — — Of Coffee, Tea and Tobacco	1682
— — — Of Lancashire, by Leigh	1700
— — — Of Jamaica, by Sloane	1725. 1707
— — — Of Carolina, by Catesby	1752. 1743. 1731
— — — Of Chocolate, by Brooks	1730
— — — Of Dorsetshire, by Coker	1732
— — — Of English Insects, by Albin	1734
— — — Of Surry, by Nicholas Salmon	1736
— — — Of North Carolina, by Brickwell	1739
— — — Of Animals, Vegetables, and Minerals, by Hill	1748
— — — Of the Islands of Scilly, by Heath	1750
— — — Of Barbadoes, by Hughes	1750
— — — Of Ireland, by Boate and Molineaux	1755
— — — Of Corallines, by Ellis	1755
— — — Of Norway, by Pontoppidan	1755
— — — Of Jamaica, by Brown	1756
— — — Of Aleppo, by Ruffel	1756
— — — Of Senegal, by Adanson	1757
— — — Of Cornwall, by Borlase	1758
— — — Of Birds, by Edwards	1758
— — — Of England, by Martin	1759
— — — Miscellaneous Tracts by Stillingfleet	1762. 1759
— — — Of the French Dominions in America, by Jeffries	1760
— — — Of a Horse from Buffon	1762
— — — Of East Florida, by Roberts	1763
— — — Introduction to Natural History	1766
— — — Opera Historiam Naturalem spectantia Petiv.	1767
— — — Of Guyana, by Bancroft	1769
— — — Of G. Britain and Ireland, by Berkenhout	1769
— — — Of Northumberland, by Wallis	1769
— — — Illustrations of Natural History, by Drury	1770
— — — Essays on Natural History, by Edwards	1770
— — — Of Tea, by Lettsom	1772
Nature Displayed by Humphreys	1736
Navigation. Advantages of Inland Navigations	1765
— — — Whitworth on Ditto	1766
— — — History of Ditto	1766
— — — Reflections on Ditto	1768
	Ne-

Necessary Companion for the English Interest	-	1684
Neville. Georgics of Virgil	-	1767
Newcastle. New Method to dress Horses	-	1669
New England's Rarities, by Josselyn	-	1672
Newton. Herbal	-	1770
Norden. Surveyors Dialogue	-	1607
North. Treatise on Grasses, and the Norfolk Willow	-	1759
North-America. State of Agriculture there	-	1766
Norway. Pontoppidan's Natural History	-	1755

O.

Oak-Timber. Considerations on Oak-Timber	-	1767
Observations and Improvements in Husbandry	-	1653
——— And Advices Œconomical	-	1669
——— In France and Italy, by Wright	-	1730
——— On Agriculture, by Rye	-	1730
——— On Husbandry, by Lisle	-	1756
Obstacles to Improvements in Scotland	-	1760
Œconomy. Young's Rural Œconomy	-	1770
Old Thrift revived by R. C. on planting Timber	-	1612
Olive-trees. Their Culture, by Locke	-	1766
Onely. Of the Price of Wheat	-	1765
——— Care of civilized Nations to the Poor	-	1765
Orange-trees. Comelyn on their Management	-	1683
——— Evelyn's Treatise on Orange-trees	-	1693
——— Method of preserving them in the Winter.	-	
——— Vide the Tracts, page 194	-	1773
Orchard. Herefordshire Orchards, (Vide Bradley)	-	1716
——— Lawson's New Orchard	-	1597
Osmar. Dissertation on Horses	-	1756
——— On the Diseases of Horses	-	1759
——— Method of Shoeing Horses	-	1761
Oxen. Gibson's Renetus on the Diseases of Oxen	-	1748

P.

Palæologia Sacra. Stukely	-	1763
Paradise of Flora, by Sir Hugh Platt	-	1600
Parkinson. Garden of Pleasant Flowers	1656.	1629
——— Theatre of Plants	-	1640
Parsons. Microscopical Theatre of Seeds	-	1744
——— Analogy of Animals and Vegetables	-	1752
Partridge. (Philip) Vide Googe	-	1578
Pattullo. On Cultivation of the Lands in Bengal	-	1771
Pechey. Compleat Herbal of Physical Plants	-	1694
Pemberton.		

Pemberton. London Dispensatory	-	1746
Pembroke. On Breaking Horses	-	1761
Pennant. British Zoology	- 1766. 1768.	1769
Pennington. On Common Fields	-	1770
Peters. Rational Farmer	-	1770
—— Winter Riches	-	1771
Petiver. Museum Petiverianum	-	1692
—— History of English Plants	-	1713
—— Opera Historiam Naturalem Spectantia	-	1767
Pettus. History of the Chief Mines in England	-	1670
Pharmacologia. Dale	- 1737.	1710
Pharmaco-Botanologia. Blair	-	1723
Pharmacopæia Londinensis	-	1746
—— Domestica. Ball	-	1760
Pidgeons. A Treatise on Domestic Pidgeons	-	1764
Pidgeon-house. By Moore	-	1735
Pine-apple. Giles's Method of Raising Pines	-	1766
Planter. Cotton's Planter's Manual	-	1675
—— Compleat Planter and Cyderist	-	1685
Plants. Thompson's Method of Discovering their Virtues	-	1734
—— Hill on the Knowledge of Plants	-	1759
Platt. (Sir Hugh) Dyvers Soyles for manuring Land	-	1593
—— Paradise of Flora	-	1600
—— Garden of Eden	-	1658
Plattes. (Gabriel) Jewel-house of Art and Nature	1653.	1594
—— Remedies against Famine	1684.	1596
—— New, cheap and delicate Fire of Cole-balles	-	1630
—— Discovery of Subterranean Treasure	-	1638
—— Mercurius Lætificans	-	1644
—— Observations and Improvements in Husbandry	-	1653
—— Practical Husbandry Improved	-	1656
Pliny. Holland's Pliny's Natural History	-	1601
Plott. Natural History of Oxfordshire	-	1678
—— Natural History of Staffordshire	-	1686
Ploughs. Randal's New Construction of Ploughs	-	1604
Pluknet. Phytographia	-	1691
—— Almagestum Batanicum	-	1696
—— Amaltheum Botanicum	-	1705
—— Opera Botanica	-	1769
Pococke. Description of the East	-	1743
Pontoppidan. Natural History of Norway	-	1755
Poor. Firmin's Proposals for Employing the Poor	-	1681
—— Lord Molesworth's Considerations for ditto	-	1723
—— Onely's Care of civilized Nations to the Poor	-	1765
Pope. Plan of Mr. Pope's Gardens and Grotto	-	1745
Potatoes.		

Potatoes. England's Happiness encreased by Planting	1664
Pot-Ash. Warren's Method of making Russian Pot-Ash	1753
—— Stephens Method of making it	1753
—— Dossie's Observations on Ditto	1767
Poultry. The husbandlye Ordering and Government	1581
Pratt. (William) Vide Googe	1578
Provisions. Considerations on their high Price	1765
—— On the High Prices of Provisions	1767
—— Answer to a Pamphlet, on Ditto	1768
—— Considerations on Ditto	1768
—— Serious Reflections on Ditto	1768
Public Spirit. In regard to Public Works, by Savage	1737
Pullein. Translation of Vida's Silkworm	1753
—— Culture of Mulberry-trees and Silk	1758
—— On Preserving seeds during long Voyages	1760
Pulteney. Plantæ rariores circa Leicestriam	1756
Purchase. Theatre of Political Insects	1657

R.

Ram. Little Dodeon or History of Plants	1606
Rand. Index Plantarum offic. Horti Chels.	1730
—— Horti Chelsejani Index compendiarius	1739
Randal. Semi-Virgilian Husbandry	1764
—— New Construction of Ploughs	1764
Rathbone. The Surveyor	1616
Ray. Catalogus Plantarum in Aurea Cantabrigiæ	1660
—— Cat. Plant. circa Cantabrigiam nascentium	1660
—— On the Tapping of Trees	1669
—— Catalogus Plantarum Angliæ	1670
—— Travels through Flanders, &c.	1738. 1673
—— Discourse of Seeds and Specific Difference of Plants	1674
—— Methodus Plantarum Nova	1682
—— Historia Plantarum Generalis	1716. 1704. 1687. 1686
—— Fasciculus Stirpium Britannicarum	1628
—— Synopsis Methodica Stirpium Britannicarum	1724. 1690
—— Wisdom of God manifested in the Creation	1691
—— Stirpium Europæarum Sylloge	1694
—— Travels Improved	1738
Rea. Flora, or Complete System of Gardening	1665
—— Flora, Ceres and Pomona	1676
Reeve. Art of Farriery	1763
Reasons for a Registry of Lands	1678
Remnant. A Treatise on Bees	1637
Renetus. On the Diseases of Oxen and Horses, by Gibson.	1748
Reply to the Essay on Bread	1758

Repository.

Repository. Or de Re Rustica	-	1769.	1768
Rhubarb. Hope's description of the true Rhubarb			1766
Richards. The Gentleman's Steward	-		1730
Roads. Homer on preserving them	-		1767
Roberts. Natural History of East Florida	-		1763
Rocque. Treatise on the Hyacinth	-		1753
—— On Cultivating Lucern	-		1760
Rowe. Wheel-Carriages Improved	-		1734
Ruffel. Natural History of Aleppo	-		1756
Rutten. Modern Eden	-		1767
Rye. Observations on Agriculture	-		1730
S.			
Saffron. Botanical Description of the true Saffron			1725
Saint-foine Improved	-		1671
Saint Pierre. On Cultivating the Vine	-		1772
Sallets. Evelyn's Acetaria or Discourse of Sallets			1699
Salmon. (Nich) Antiquities of Surry	-		1736
—— English Herbal	-		1710
Savage. Of Public Spirit, in regard to Public Works			1737
Scale. Tables for Valuing Estates	-		1772
Schola Botanica, à Wharton	-		1689
Sciagraphia Historiæ Naturalis	-		1720
Scot. Perfite Platform of a Hop-Garden	-		1574
Scotia Illustrata per Sibbald	-		1684
Scotch Essays from the Mus. Rust. tried	-		1677
Scotland. Obstacles to the Improvement of their Land			1760
—— Interest of Scotland Considered	-		1733
Seeds. Parson's Microscopical Theatre of Seeds			1744
—— On Preserving Seeds in Long Voyages		1760.	1770
Seldon. History of Tythes	-		1618
Sensitive Plant. The Dionæa Muscipula	-		1770
Sharrock. On the Propagation of Vegetables			1660
Shaw. Travels in Barbary and the Levant	-		1738
Shepe. England's Decay, by the Multitude of Shepe			1588
Sheldrake. Herbal of Medicinal Plants		}	1756
—— — On Heat and Cold of Hot-houses			
Shenstone's unconnected Thoughts on Gardening			1764
—— Description of the Leaseowes, his Seat			1764
Shepardes. Kalendar	-	1631.	1559
Shepherd of Banbury's Prognostics on the Weather			1744
Sherard. Vide Wharton	-		1689
—— — Jacobus. Hortus Elthamensis	-		1732
Sherley. Curiosities of Scurvy-grafs	-		1676
Shoeing. Method of Shoeing Horses	-		1761
			Shoeing.

F f

Surveying. Leigh's Science of Surveying	-	1578
——— Tectonicon, Digges's Surveying	-	1631
——— Break's System of Land-Surveying	-	1771
Surveyor, by Rathbone	-	1616
——— Norden's Surveyor's Dialogue	- 1618.	1607
——— The Faithful Surveyor	-	1662
Sutherland. Edingburgh Physic Garden	-	1683
<i>Swammerdam</i> On Insects (Vide Hill)	-	1758
Switzer. Icknographia Rustica, or Gardener's Recreation	-	1717
——— Fruit-Gardener	-	1717
——— Kitchen-Gardener	-	1717
——— On Foreign Vegetables	-	1729
——— On the True Cytisus	-	1731
——— Country Gentleman's Companion	-	1732
Sylva Sylvarum, by Lord Bacon (1st Edition 1621.)	-	1670
Sylva, or a Discourse on Forest-Trees, by Evelyn	-	1664
Synopsis. Ray's Synopsis	- 1724.	1690
——— Threlkeld's Synopsis	-	1726
——— Wilson's Synopsis	-	1744
T.		
Tanning. Without Bark	-	1731
Tea. Natural History of Tea, by Lettsom	-	1772
—— James Treatise on Tea	-	1746
—— Short's Discourse on Tea	-	1750
Templeman. Curious Remarks in Physic, &c.	-	1753
Terra. A philosophical Discourse on Earth, by Evelyn	-	1675
Theatre of Plants, by Parkinson	-	1640
<i>Theophrastus</i> . Translated by Hill	-	1748
Thickness. On Foreign Vegetables	-	1747
Thompson. Method of discovering the Virtue of Plants	-	1734
——— Properties of a fine Auricula	-	1757
Thorly. On Bees	-	1744
Threlkeld. Synopsis Stirpium Hibernicarum	-	1726
Threshing Machine	-	1735
Thrift. The Book of Thrift, by J. B.	-	1591
Timber. An old Thrift on preserving Timber	-	1612
——— Directions for planting Timber, by Standish	-	1613
——— Essay on Timber Trees, by Hall	-	1645
——— Evelyn's Sylva, or Propagation of Timber	-	1664
——— On the Scarcity of Timber	-	1766
——— On measuring Timber standing by Duncombe	-	1769
——— Microscopically explained, by Hill	-	1770
Tobacco. Natural History of Tobacco	-	1682
——— James's Treatise on Tobacco	-	1746
Tour. Young's Tours through England	- 1767. 1770.	1771
Tournefort. History of Plants, by Martyn	-	1732
Tradescant. Museum Tradescantianum	-	1656
Trowel. On Husbandry and Gardening	-	1739

Tull. Horse-hoeing Husbandry	-	1731
— Essay on it	-	1733
— Supplement to the Essay	-	1735
— Addenda and Conclusion	- 1739.	1738
Turner. Historia de Naturis Herbarum	-	1544
— A New Herbal	-	1551
Turbilly. On the Cultivation of waste and barren Lands	-	1762
Tusser. Five hundred Points of Husbandry	-	1562
— With Notes and Observations	-	1743
Tythes. History of Tythes, by Seldon	-	1618
— Law of Tythes	-	1730

V.

Vade-Mecum. Florist's Vade-Mecum, by Gilbert	-	1702
— Country-Gentleman's, by Jacob	-	1717
Value of Land to raise	-	1736
Van Campen. Dutch Florist	-	1764
Van Oosten. Dutch Gardener	-	1703
Vaughan. On drowning Meadows	-	1510
Vegetable System, by Hill	- 1758.	1773
Vegetation. Grew on the Vegetation of Plants	-	1661
Vida. Pullein's Translation of Vida's Poem	-	1753
Vines. Locke on their Culture	-	1766
Vineyard. Hughes's Flower-Garden and Vineyard	-	1683
— A Treatise on cultivating Vines	-	1727
— Nature and Method of planting a Vineyard	-	1732
— Hill's Direction for cultivating in America	-	1749
— Culture of the Vineyards of Alto Douro	-	1749
— St. Pierre's Art of planting the Vine	-	1772

U.

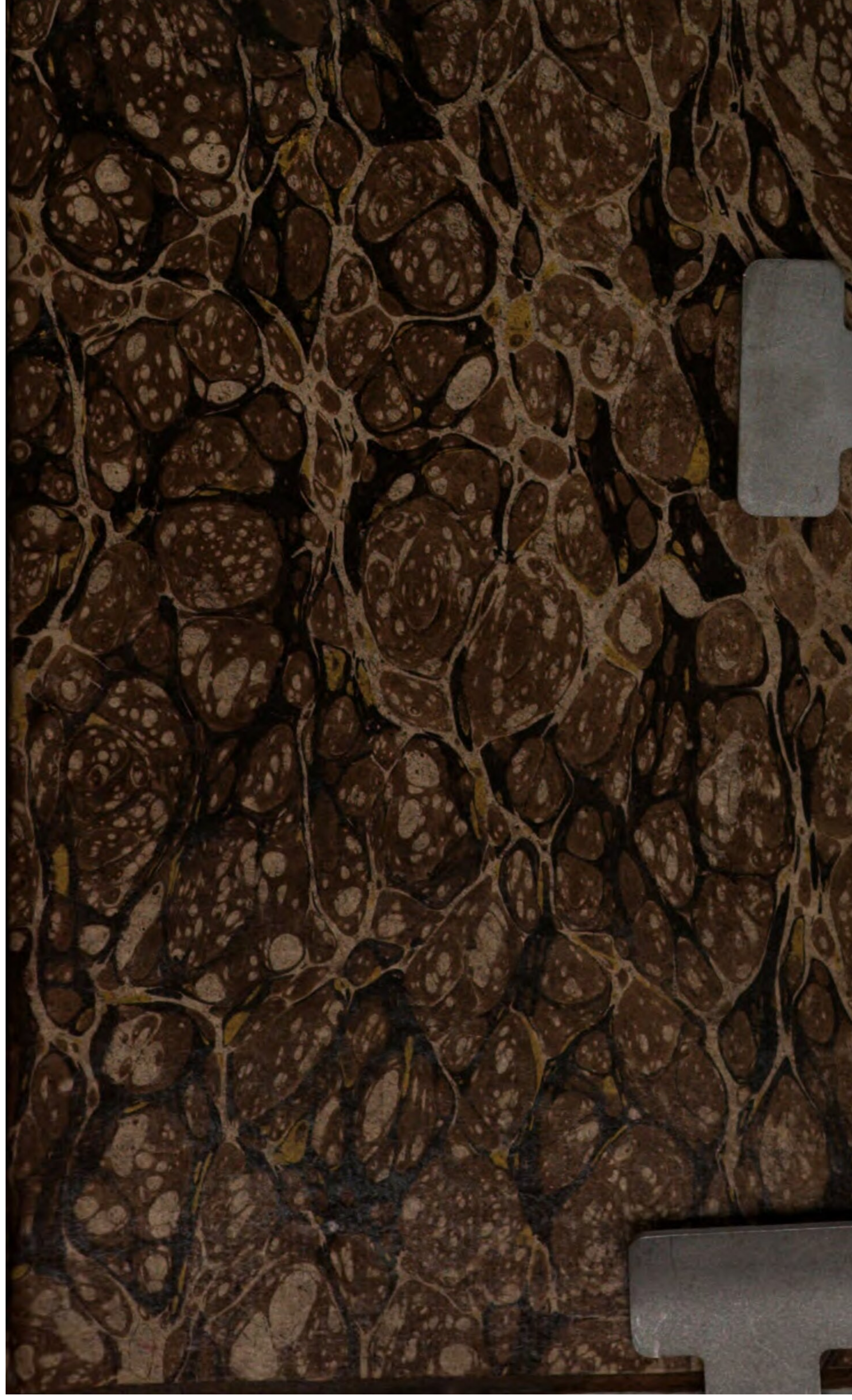
Uniting Farms disadvantageous.	-	1767
--------------------------------	---	------

W.

Wall. On breeding Horses	-	1767
Wallis. Farrier and Horseman's Dictionary	-	1758
Wallis (John) Natural History of Northumberland	-	1769
Ward. Secretes of the Rev. Maister Alexis	-	1595
Warder. Monarchy of Bees.	-	1716
Warren. On Pot-Ash	-	1753
Wasps. Derham on Wasps	-	1725
— Wildman on Wasps	-	1770
Ways and Means to raise the Value of Lands	-	1736
Weather. Shepherd of Banbury's Prognostics on it	-	1744
— Mills's Essay on the Weather	-	1770
Webb. Catalogue of Seeds and Roots	-	1753
Welsh Farming. Treatise on it	-	1756
Weston. Tracts on Agriculture and Gardening.	-	1769
— Chronological Catalogue of Authors	-	1769
— Universal Botanist	- 1770. 1771.	1772
Wettenhall (Thomas) Vide Googe	-	1578

Wharton. Schola Botanica	-	-	1689
Wheat. Enquiry into the Prices of Wheat, &c.	-	-	1765
——— Authentic Account of the Price of Wheat	-	-	1765
Wheatly. Observations on Modern Gardening	-	-	1770
Wheel-Carriages improved, by Rowe	-	-	1734
——— Bourn's Treatise on them	-	-	1764
Wheeler. Modern Druid	-	-	1747
——— Botanist's and Gardener's Dict. and Calend.	-	-	1763
Whetston. Rock of Regard	-	-	1562
Whitaker. The Blood of the Grapes	-	-	1654
White. Collateral Bee-Boxes	-	-	1756
White (William) Guide to the Mystery of Bees	-	-	1772
Whitmill. Calendar	-	-	1726
Whitworth. On Inland Navigations	-	-	1766
——— On Broad Wheels	-	-	1767
Wickham. On Broad, High-Wheel Carriages	-	-	1755
Wildman. Treatise on Bees	-	-	1770
Wilkes. English Moths and Butterflies	-	-	1749
Willow. North on the sound-growing Norfolk Willow	-	-	1759
Wilson. Synopsis of British Plants	-	-	1744
Wimpey. On Corn and Provisions	-	-	1770
Wines. Art of making from Fruit	-	-	1760
Wise. London and Wise Complete Gardener	-	-	1699
——— Retired Gardener	-	-	1706
Wolfius. On Multiplication of Corn	-	-	1734
Wood. Treatise of Farming	-	-	1757
Woods. Common's Complaint on the Waste of Woods	-	-	1611
Wool. Memoirs of	-	1747.	1757
Wool-growers. Complaints against them	-	-	1753
Woollen Manufactures. View of them	-	-	1753
Worldge. Art of Gardening	-	-	1677
——— System of Agriculture	-	-	1668
Wright's Observations in France and Italy	-	-	1730
Y.			
Yeerswort. (Nicholas) Vide Googe	-	-	1578
Young. Farmers Letters	-	1771. 1769.	1767
——— Six Weeks Tour	-	-	1767
——— Six Months Tour through the North	-	-	1770
——— On Exportation of Corn	-	-	1770
——— Experimental Agriculture	-	-	1770
——— On Fattening of Hogs	-	-	1770
——— On Coleseed	-	-	1770
——— Rural Oeconomy	-	-	1770
——— Farmers Guide	-	-	1770
——— Proposals for numbering the People	-	-	1771
——— Farmer's Tour through the East	-	-	1771
——— Observations on the Waste Lands	-	-	1772





Weston, Richard

Tracts on practical agriculture and gardening particularly addressed to the gentlemen-farmers in Great-Britain ; with several useful improvements in stoves and green-houses ; to which is added a chronological catalogue of English authors on agriculture, botany, gardening etc

London 1773

Oecon. 1882

urn:nbn:de:bvb:12-bsb10299695-6